1944

Forest land ownership in Louisiana and its influence on timber production

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LOUISIANA BULLETIN No. 377 JULY, 1944

FOREST LAND OWNERSHIP IN LOUISIANA

AND

ITS INFLUENCE ON TIMBER PRODUCTION

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December, 1943

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AGRICULTURAL EXPERIMENT STATIONS

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TABLE OF CONTENTS

I

II

III

IV

Forest Land Ownership in Louisiana and Its Influence on Timber Production

By

A. D. Folweiler

INTRODUCTION

A Digest of the Findings

The State and the Federal governments have attempted to deal with the task of increasing the fund of timber. Progress has been made through public aid to private landowners and by public acquisition of forest land in fee. The results to date, however, have not been as widespread or as productive as might be expected. This can be attributed, for the most part, to an adherence to the basic policy of the State expressed in the Forest Conservation Act.

The Act was founded on the priciple of aiding private landowners in protecting their lands against forest fires. But protection against fires in only a start toward increasing the fund of timber. Provision for future stands of timber through leaving a sufficient supply of seed trees at time of cutting, or planting where none are available, must be given as much emphasis as protection against fires. The proposals made in this paper have taken into consideration the important factors of natural and institutional characteristics in each important forest type. Particular attention has been given to the privately owned forest land.

Title to the forest land of Louisiana is held mostly by private owners. The public owns approximately twelve percent. Of this, more than half is in the dubious category of tax-adjudicated land to which the State has only a tenuous title. The Federal government holds title to approximately one-third of the above-mentioned twelve percent. This means, therefore, that the task of increasing the fund of timber in Louisiana, available for use by the forest products industries, is intimately bound up with private ownership. The number of private holdings is very large. These owners, moreover, are a heterogeneous lot from the standpoint of purpose in retaining title to their forest land holdings.

Louisiana contains forest land that can be grouped into three important forest types. These types are (a) the loblolly-shortleaf of Northwest Louisiana, (b) the longleaf-slash type of the Southwest and the Southeast, and (c) the Mississippi bottomland hardwoods.

In the loblolly-shortleaf area, there are approximately three thousand feet board measure of sawlogs, or thirteen cords of pulpwood on the

average acre. In contrast to this, in the longleaf-slash type, there are one thousand feet board measure of sawlogs, or three cords of pulpwood. This condition is the result of the ability, or lack of it, of each forest type to establish young stands of timber. In turn, this is reflected in the ownership of the land. In the loblolly-shortleaf type, 40 percent of the forest land is owned by forest products industries that operate manufacturing units dependent upon the timber on their own and adjacent lands. Farmers, or private owners who hold title to farm units, account for 39 percent of the forest land ownership. Miscellaneous people, i.e., the operator of a dry-goods store in the county seat, a local lawyer, a nearby school teacher, and others who hold title to forest land detached from either a farm or industrial unit, hold title to only 21 percent. In the longleaf-slash type, on the other hand, the owners of farm units hold title to only 11 percent of the forest land. The forest products industries own 25 percent, and the miscellaneous owners, which include the forest products industries that have liquidated their timber holdings and dismantled their mills, hold title to the remaining 64 percent, or almost two-thirds of all the forest land.

Insofar as the pine types of the State are concerned, the forest products industries have much more incentive to hold forest land in the loblolly-shortleaf type than in the longleaf-slash. The first-mentioned type is much more readily managed for continuous timber production than the latter.

In the Mississippi bottomland hardwood type, even in the most productive area, viz., the Delta or Northeast Louisiana, the fund of timber is only three thousand feet board measure of sawlogs on the average acre, or eleven cords of pulpwood. Of the pulpwood, less than half of the volume is currently utilizable by pulp mills because of the pulping characteristics of some of the species. In the Delta area, the forest products industries own only about one-quarter of the forest land. Almost half of the forest land is attached to agricultural units. Miscellaneous owners hold title to the remaining one-quarter of the forest land area.

In the nine parishes that were studied intensively for ownership, there were almost 16,000 owners who held title to slightly more than 3,000,000 acres of forest land. For a given unit of forest land, owners are most abundant in the loblolly-shortleaf type and least numerous in the bottomland hardwood area. The average area held per owner in the loblolly-shortleaf type is 150 acres, in the longleaf-slash 213, and in the bottomland hardwood 630. These data lead to the conclusion that the task of increasing Louisiana's fund of timber is one of dealing with the reconciling the divergent points of view of numerous individual owners. Due to the complex pattern of ownership caused by the numerous titleholders, there is no simple and single approach to the task of increasing the fund of timber. The job is further complicated by the heterogeneous nature of the forests. Each forest type needs to be treated as an entity.

Because of the relative ease with which forestry can be practiced in the loblolly-shortleaf area, which is about twice the size of the longleaf-slash type, most attention has been devoted to it in this inquiry. In 1943, the forest land of the loblolly-shortleaf area was producing at less than half of its capacity. This situation prevails in the type in which, as just mentioned, forestry can readily be practiced. But the ownership pattern is complicated. Farm units, with their ancillary forest land, intermingle with industrial and miscellaneous holdings. Most forest products industries wish to keep their lands productive but, having no control over adjacent privately owned lands, have no incentive to practice forestry on other than their own holdings. The State, however, has the social responsibility for doing those things that will maintain the productivity of the forest land insofar as it is able under our prevailing institutions. The State can redeem its social responsibility by reconciling the divergent views of the forest land owners. A plan for achieving this is offered in the Forest Conservation Districts, comparable in operation to the Soil Conservation Districts. The District plan recognizes the community-of-interests of all classes of forest land owners. The plan offered in detail in this publication is based on the State making it possible and desirable for all classes of landowners to work together so that forestry can be practiced on a more widespread basis than is today possible.

The practice of forestry in the longleaf-slash type is more difficult than in the loblolly-shortleaf. This is caused by the characteristics of the species. The ownership pattern that currently exists is, in part, a reflection of the peculiarities of the forest type. Cutover forest land reseeds reluctantly. The land, moreover, is not well suited to farming so there are fewer farms per unit of land area than are found in the loblolly-shortleaf type. Within recent years, moreover, several oil fields have been developed within the area covered by the type. The State's laws pertaining to sub-surface values encourage continued fee ownership, even though the surface has been denuded of its forest cover and in spite of the land's unsuitability for farming. Because of the long-time nature of the enterprise, the owners have very little incentive to invest money in timber production. If the area covered by the longleaf-slash type is again to become highly productive of timber, there must be planting of tree seedlings done on an extensive basis. This will call for an investment of capital on more than a million acres. Recognizing that it is doubtful that the laws pertaining to sub-surface values will change soon, and keeping in mind the difficulty of interesting the landowners in forestry because of the denuded condition of so much of the area, a lease arrangement between the State and private owners appears to be a practicable solution. There is a discussion in detail below as to reasons why the State would be justified in leasing the surface from the present owners who retain title primarily, and frequently only, because of sub-surface values.

Just as Louisiana has had some of the finest stands of longleaf pine in the South, so has it had high-quality forests of hardwood timber, par-

ticularly red gum and cypress. The hardwood forests, however, have been well culled over. The quality of the timber now present is considerably inferior to what once existed. Very little is known, moreover, of the silviculture of bottomland hardwoods. The nub of the task of increasing the fund of timber in the hardwood belt is the utilization of the low-grade species and low-value trees that dominate so much of the area. The bottomland hardwood type accounts for almost half of the forest area of the State, but very little is known of forest management for it. Much needs to be done to determine economic uses of the low value species that occupy so much of the bottomland hardwood area.

—A. D. Folweiler.

I

PURPOSE OF STUDY

This study is devoted to an examination of forest land ownership in the State. Ownership and management are intimately associated. The ownership of private property gives to the owner the exclusive right to economic goods. Inasmuch as forest land is a form of private property, the owner has the right to produce, or refrain from producing timber. If it is desirable for Louisiana to produce more timber to serve as raw material for manufacturing plants, it is first necessary to know who owns the land that is commonly referred to as forest land.

For the last three decades the production of lumber has decreased because of lessening supplies of timber of sawlog size. Within the recent two decades, pulp manufacturing, a heavy chemical industry utilizing timber as raw material, has to some extent offset the decrease in manufacturing employment caused by the decline of the lumber industry. Other manufacturing in Louisiana, based largely on the use of petroleum, salt, sulfur, and gas, all raw materials obtained below the land surface, has increased in importance. Of the State's important natural resources, however, timber is distinctive in that it is renewable. With the practice of forest conservation, Louisiana's forest land can make very important contributions to the State's economy.

Sawmilling in the State was once characterized by manufacturing units of high productive capacity requiring large-sized and extensive stands of timber for efficient and profitable conversion into boards and structural timbers. The trend of the sawmill units today, however, is toward smaller plants that no longer rely on large-sized virgin timber. The modern transportation system, i.e., good roads and trucks, makes it possible for modern sawmills to operate without the construction of railroads devoted exclusively to the movement of logs. The virgin stands of timber have been succeeded by smaller-sized second-growth or "junior" forests. The sawmill industry has adjusted itself to the change in size of timber. Today relatively small units with an annual capacity of 25 to 50

million feet board measure have, for the most part, taken the place of the large mills, with annual production of around 200 million feet. The smaller timber has also attracted pulp mills that prefer this sort of timber. With a shift in the type of manufacturing plants that utilize timber, there has undoubtedly been a change in forest land ownership. The sawmills at one time were in the enviable position of owning or controlling most of the timber needed for their manufacturing plants. When a large mill had liquidated its resources, it dismantled its mill and sold its cut-over land when it could. The land had been acquired not because of a desire to own land, but because of the timber that was on it. Once the timber was removed, the land was regarded as a residue, and frequently, a liability.

The degree to which forest products industries can contribute to the economy of the State, i.e., by employing people, is determined by the fund of timber. If the forest land is maintained at a high level of its potential productivity, more forest products industries can be sustained than if the fund is low. But, as mentioned above, the productivity of the land is dependent upon the attitude of the owners. For this reason it is worth while to examine the relationship of forest land ownership and the productivity of the land.

The Forests and Forest Land Area

The area of the State is 29,061,700 acres.[1] According to a recent United States Forest Service publication,[2] the forest land area is 16,193,000 acres, or approximately 55 per cent of the State's total area. Actually the percentage of forest land is probably slightly in excess of 55 percent, for in the statistic no deductions were made for areas covered by water.

Of the land area in forests, 11.9 percent is in public ownership and 88.1 percent in private ownership. Louisiana is typical of the southern states, in contrast to many western states with regard to the relationship between private and public forest land area. In the South forest land is owned predominantly by private rather than public owners.

Major Associations of Forest Tree Species

Subject to certain qualifications, it can be stated that approximately one-half of Louisiana's forest land is covered by hardwood timber, including cypress, and the other half by pine. Among the southern states, Louisiana is unique in having so large a percentage of its forest land in the bottomland hardwood category. In Georgia,[3] for example, only four percent of the forest land is classified as bottomland hardwood in contrast

[1] State of Louisiana, Dept. of Commerce and Industry; *Louisiana's Resources and Purchasing Power,* 1938.

[2] United States Department of Agriculture, Forest Service Miscellaneous Publication No. 519, *Louisiana Forest Resources and Industries,* 1943.

[3] United States Department of Agriculture, Forest Service, Miscellaneous Publication No. 501, *Georgia Forest Resources and Industries,* 1943.

to Louisiana's 47 percent. This is due to the presence of the nation's largest watercourse, the Mississippi River, and its peculiar behavior in emptying its load into the Gulf of Mexico. Especially before the levee system was established, annually a great deal of land was inundated and enormous deposits of silt were laid down as the water receded into the stream channel. The effect of this was to drive the pine species to the rolling uplands, leaving in the overflow areas the more flood-resistant hardwood species. The fine-textured soil deposited by the frequent inundations created an environment unsuited to pine timber.

The fact-finding Forest Survey recently released data[4] which show that in Louisiana the distribution of forest land, classified by the four major forest types, is as follows: bottomland hardwoods 47 percent, loblolly-shortleaf pine 31 percent, longleaf-slash 16 percent, upland hardwoods 6 percent. For the purpose of simplification in the discussions in this paper, only three of the major types will be used. The upland hardwood area, because of its limited size, will be omitted.

Reference to the major types can hardly be made without some mention of forest capital. The Forest Survey data[5] show that Louisiana had 42.4 billion feet, board measure, of timber in 1938. Of this amount, 64 percent was in hardwoods and 36 percent in pine. In 1937 there was a net increment of 1.9 billion board feet and a commodity drain of 2.3 billion board feet, or a deficiency of 0.4 billion feet, board measure. Expressed in units of cords for the forest capital five inches and larger in diameter, there was a net growth of 7 million cords and a commodity drain of 6.3 million cords, or a surplus of 0.7 million cords of wood, not all of which was commercially desirable.

If the data just mentioned above is to have any direct connection with this study, it should be divided into major forest types. Of the two pine types, the loblolly-shortleaf type is not only almost twice as large in land area as the longleaf-slash, but also has a greater per acre volume of timber. Although the sawlog volume is only 3.0 thousand feet board measure per acre in the loblolly-shortleaf type, it is three times as great as that found in the longleaf-slash type. If the forest capital is expressed in cordwood units, there is an average of 12.8 cords of timber per acre in loblolly-shortleaf type, or a little over four times as much as is found in the longleaf-slash area where the average is 3 cords per acre. These statements do not imply that the productive *capacity* of the two areas bears the relationship indicated. The data merely show that at the time the forest survey was made, there was much more timber on the loblolly-shortleaf lands than on the longleaf-slash. Neither forest type, particularly the longleaf-slash, is attaining nearly its productive capacity. For this reason, it can be stated that Louisiana is wasting one of its important resources.

In the bottomland hardwoods of the Mississippi overflow areas, the average forest capital, per acre basis, is 2.78 thousand feet board measure.

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[4] United States Department of Agriculture, Forest Service, Miscellaneous Publication No. 519, *op. cit.*

[5] *Ibid.*

Most of this volume is in species that are in very low commercial demand. The data of the Forest Survey show that only 18 percent of the forest land area in the upper part of the bottomland hardwood or Delta territory has 1000 or more board feet of timber utilizable for lumber, veneer, and cooperage manufacture. In the southern part of the overflow area, 20 percent of the forest land has utilizable species of more than 100 feet board measure. Expressed in cubic measure, there are 10.6 cords per acre of timber on the hardwood bottomlands, but only half of this is in soft-textured species used by the pulp industry.

From the standpoint of economic considerations, the above facts lead to the conclusion that the loblolly-shortleaf forest type is the most important in the state. In spite of the fact that it has been subjected to almost the same cutting conditions and frequency of fires as has the longleaf-slash, the silvicultural characteristics are such that today it has much more forest capital on it, on a per acre basis, than has the longleaf-slash area, and is almost twice as large in size. Although the area of the state in bottomland hardwoods amounts to more than half the forest area, most of its forest capital is such that it is not readily utilizable by sawmills, pulp mills, veneer factories, or cooperage plants. In spite of the pine area of the State being slightly less than half of the total forest land, and furthermore being fairly well depleted of its forest capital, it still produces twice as much lumber as the bottomland hardwood area.

Public Ownership and Control of Forest Land

Public holdings can be grouped under three broad headings, viz., federal, state, and municipal. Ownership of public forest lands, in 1942, is shown in the data in Table 1. The categories in Table 1 are by no means exhaustive. There has been some public acquisition of forest land

Table 1

Public Ownership of Forest Land, 1942

Agency	Area in acres
Federal	
Forest Service	505,000
Soil Conservation Service	31,000
Farm Security Administration	51,000
Wartime holdings for ordnance plants and military bases	20,100
Mississippi River Commission	50,000
State	
Department of Conservation, Division of Forestry	12,800
State Park Commission	8,800
Land Office—Free land	20,000
Tax adjudicated	1,150,000
Parish School Boards	75,784
Total	1,924,484

because of the war effort, but the amount has been limited. The war effort acquisitions are not included. The data do show, however, that forest land in Louisiana is owned predominantly by private owners rather than the public which owns or controls the surface rights to 11 percent of the forest land.

Federal Holdings

The Federal holdings in fee of forest lands in Louisiana are administered by three U. S. Department of Agriculture bureaus, namely, the Forest Service, the Farm Security Administration, and the Soil Conservation Service.

The public agency controlling the largest acreage of forest land is a comparative newcomer to the State. Acquisition of forest land for national forest purposes in Louisiana required under authority of the Weeks Law of 1911 did not commence until 1932. The focal point of the national forest holdings is the city of Alexandria in Rapides Parish, but national forest lands are situated in eight of the State's 46 wooded parishes.

The Forest Service administers 505,000 acres of Federal land dedicated to national forest purposes. These lands are predominantly cutover pine and situated in the central part of the State. Acquisition of these national forest lands in Louisiana, known as the Kisatchie National Forest, commenced in 1929. By the time the Civilian Conservation Corps struck its stride in 1934, these lands were available to receive the improvements that could be made by the CCC labor. A great deal of the forest area contained in the Kisatchie was in need of planting and could be rehabilitated only through planting. This was done, as well as many other necessary forestry jobs, by the Civilian Conservation Corps. The Forest Service has consistently distinguished itself, as a Federal bureau, for the excellent management of the national forest lands, its largest administrative job. As the result of excellent forest conservation practices, the Kisatchie National Forest will some day contribute materially to the forest resources of Louisiana and at a much earlier date than if these lands had been left in private ownership. When acquired by the Federal government, they were severely depleted of forest capital. Without a heavy investment of capital funds, the forests would probably have remained in a severely depleted condition especially those lands that at one time had been covered by longleaf pine. Private ownership in Louisiana has been consistently reluctant to invest money in reforesting depleted longleaf lands. This attitude is undoubtedly justified because of the problems associated with managing longleaf pine.

The Soil Conservation Service administers 31,000 acres of land, most of which is forested, although there is some abandoned agricultural land intermingled with it. These lands lie in the northwestern part of the state where the loblolly-shortleaf forest type prevails. This acreage was inherited from the Resettlement Administration at the time that agency

was liquidated. Although the Soil Conservation Service's primary job is extending educational and advisory services to private owners of agricultural units in order to conserve soil productivity, it was probably assigned the forest area it administers today because the land lay well beyond the boundaries of the purchase units established by the Forest Service for the Kisatchie National Forest. This agency now administers this land in two separate units of approximately 13,000 and 18,000 acres in Webster and Claiborne Parishes respectively. The chief land use of these areas is timber production, with cattle and agricultural commodity production as secondary uses.

The Farm Security Administration administers 51,000 acres of Federal land in the Delta hardwood area, one of the most fertile alluvial areas of the State. Of the area administered by this bureau 20,100 acres are considered as forest land. At the present time, the bureau has no long-range, well-developed policy for administering these forest lands.

Although the Mississippi River Commission holds title to very little forest land, it has effective control over the surface rights of a considerable area covered by hardwood timber in the Morganza Floodway. It has been the policy of the Commission to secure easements that allow the Federal government to use the surface for virtually any purpose, including the supervision of the pasturing of animals and reforestation of open lands. Removal of timber from the land is prohibited except under the specific permission of the Commission. This virtually gives absolute control to the Commission of 50,000 acres of hardwood forest land.

State Holdings

The State's holdings of forest land can be broken up into several classes, consisting of state forests, 12,800 acres, state parks, 8,800 acres, and land adjudicated to the state for non-payment of taxes, approximately 1,150,000 acres. The Division of Forestry, within the Department of Conservation, administers the two state forests. The State Park Commission administers the land dedicated to use as state parks.

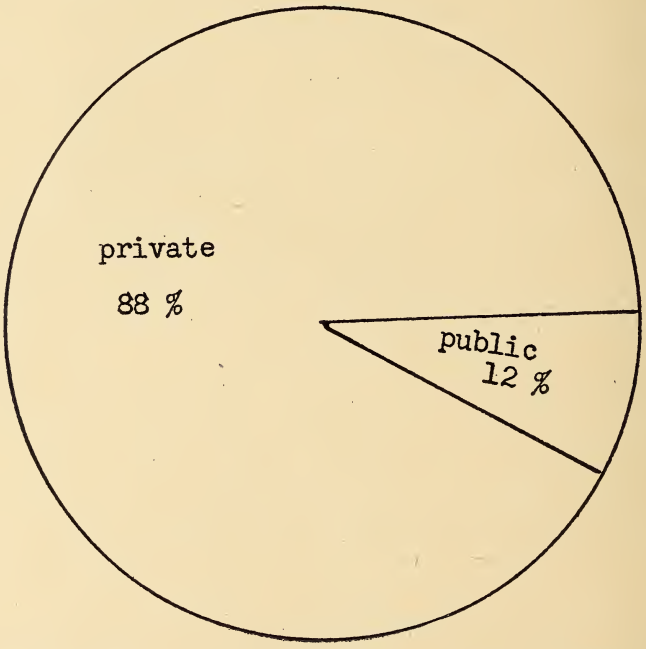
Tax Adjudicated Land

One way in which a state or lesser political unit acquires title to forest land is through tax payment delinquency. Just what becomes of the title to forest land upon failure of the private owner to pay taxes varies with the political unit in which it is situated. New York, for example, created public forest reserves in the Adirondack and Catskill Mountain regions out of land that had reverted to the State because of tax delinquency.

In Louisiana in the period 1931-1934, title to an enormous amount of real property had been transferred from debtors to creditors. In many instances those creditors were banks whose title to the property they obtained through foreclosure, was clouded by liens caused by tax delinquency. The situation was further complicated by the inability of several

banks to conduct business after the "bank holiday" of the early part of 1933. In order to help the process of liquidation of real property, the Legislature enacted laws that made it possible to thaw titles frozen by tax delinquency and thus lubricate the economic machinery. An important group of beneficiaries from the legislation, discussed in greater detail below, was land-owning forest products industries, particularly sawmill companies. Numerous examples of the redemption of their land titles were shown the writer in the files of the State Land Office.

The pattern for tax delinquency of land and subsequent redemption of title was established by Act 170 of the 1938 Legislature. According to this Act, taxes levied for a given calendar year became "delinquent" January 1 of the year following. On the twenty-first of January, notice



Relationship of public and private holdings of forest land

of this delinquency is mailed to each owner whose land has fallen into this category. In event the taxes have not been paid by February 10, a notice is sent by registered mail to the delinquent landowner, calling his attention to the status of his land. Sometime in June, public notice is given through newspapers of the delinquent status of the lands on which tax payment is overdue and a date set for the sale of these properties. These public notices usually appear five times in local newspapers, extending over a thirty-day period. Sometime in July the sale is then held by a parish official and if the property is not purchased at that time, the

title becomes vested in the State shortly thereafter when the parish tax collector supplies the State Land Office with a list of unsold tax-delinquent lands. The Act 170, 1898, further provides that once title to lands has been adjudicated to the State, in order that the original owner may redeem the land, the taxes due the State, as of the year of delinquency must be paid, plus a 20% penalty. This is paid to the State Land Office. As a prerequisite to the issuance of the State's certificate of redemption, evidence must also be furnished that the local taxes as of the year of adjudication, plus taxes assessed thereafter to the year of redemption as well as State taxes, have been paid the Tax Collector of the parish in which the lands are situated. In order to lighten the redemption load borne by the delinquent tax payer, the assessed value of the property may be lowered subsequent to the year of delinquency should the facts concerning the land warrant a reduction. The facts duly approved by the Assessor and Tax Collector of the Parish must be presented to the Louisiana Tax Commission by the tax debtor for the Commission's consideration and concurrence. Should the tax payer be unable to secure the approval of the Parish Officials, the Tax Commission is empowered to reduce the value should it deem this desirable, also requiring the Tax Collector to accept payment of any and all taxes on the revised value.

During the period 1931-1935 when large areas of land became tax delinquent, the State adopted the policy of permitting just as much real property to remain in private ownership as possible by enacting suitable legislation.

The passage of Act 161 of the 1934 Legislature permitted the redemption of property adjudicated to the State, regardless of the period of delinquency, by paying the taxes as of the year the land became delinquent, provided the payment was made between the enactment and September 30, 1935. Further aid to the private owner in the redemption of land adjudicated to the State was extended by Act 14 of the Legislature's Fourth Extra Session of 1935. This act provided that title to land that had been adjudicated to the State could be redeemed by paying only the taxes as of the year of delinquency, provided they were paid within the period September 30, 1935 to a date twenty days after the regular 1936 Session of the Legislature adjourned. In the Legislative Session of 1936, an act was passed with wording somewhat at variance with those previously enacted on the subject of restoration of title. This law was declared unconstitutional, but in the 1938 legislative session, Act 47 was passed with wording that was not contested, being almost identical with that used in the acts of 1934 and 1935.

Although the forest land adjudicated to the state amounts to approximately 1.1 million acres, and even though Craig[6] stated that, among the southern states, Louisiana ranks high in its quantity of tax delinquent lands, more forest land is not tax delinquent because owners prefer to

[6] Craig, Ronald B., *The Forest Delinquency Problem of the South;* U. S. Forest Service, Sou. For. Exp. Sta., Oc. Paper 92, 1940, mimeo.

retain title to the land for speculative reasons. In Beauregard and St. Tammany Parishes in particular, even with very low productivity from the surface of the land, tax delinquency is very low because of speculation on sub-surface values discussed under another heading.

Remnants of the Original Public Land

There is a very limited quantity of forest land with title vested in the State, land that has never been alienated from public ownership. These holdings are extremely scattered, made up of numerous small tracts, and in the aggregate amounting to less than 20,000 acres. Because of the scattered condition of these holdings, no attempt is made at administration. Although the State has never conveyed title to them or sold the timber on these lands, it is doubtful whether there is actually any timber on them, for lack of administration of forest land results in continuing diminution of value because of theft, fire, and other factors.

Forest Land Owned by Parishes

Some forest land is owned at the parish level of government because of the sectional land grants made to the state for school purposes by the Federal government. These lands are nominally controlled by the parish school board. Within recent years, some of these lands have been given some forestry supervision in order that a continuous income might be derived from their management, but the lands receiving administration of this sort are very few. By Congressional Act of April 2, 1806, the sixteenth sections of townships still in the public domain were granted to some states for school purposes. One of the states that was the beneficiary of this act was Louisiana. By virtue of this Act, Louisiana was the recipient of 807,271 acres of land. These sixteenth sections could be sold, if, by referendum, the majority of people residing in the township in which they were situated agreed to it, but the principal sum derived from the sale could not be used. The State was made custodian for the principal, with the parish school board in which the township was located the recipient of interest from the principal sum. The effect of this provision was that many sixteenth sections were sold. This accounts for the fact that there is a wide discrepancy in the forest acreage held by the several parishes listed in Table 2. In the aggregate there are approximately 75,000 acres of forest land held by parish school boards, but apparently most of this land is alluvial in nature. Most of the parishes in the hill areas of the state appear to have disposed of all or part of their sixteenth sections in contrast to parishes along the western Gulf coast that have retained all their school sections.

In many cases those parishes that retained title to their sixteenth sections have been greatly aided financially since all income accruing from these lands becomes available directly to the parish school board.

If timber is cut on these unsold lands, the local school board receives the income; if the land is leased for oil drilling and petroleum is discov-

TABLE 2.

FOREST LAND OWNED BY PARISH SCHOOL BOARDS
REMNANTS OF 16TH SECTION LAND GRANTS

PARISH	Original Grant	(Acres) Current Residue of Grants 16th Sect. Lands
Allen	unknown	.....
Ascension	6,400	700.00
Avoyelles	12,160	5,285.64
Beauregard	unknown	.....
Bienville	12,800	.....
Bossier	17,920	.....
Caddo	16,000	2,000.00
Calcasieu	37,120	15,838.00
Caldwell	5,120	860.00
Catahoula	12,160	2,880.00
Claiborne	14,720	.....
Concordia	10,240	3,420.48
Desoto	16,000	1,240.00
East Baton Rouge	9,880	2,136.20
East Carroll	8,320	3,155.58
East Feliciana	7,680	.....
Evangeline	unknown	1,920.00
Franklin	6,400	1,188.00
Grant	5,760	670.00
Iberia	7,680	5,001.78
Iberville	10,240	.....
Jackson	4,480	.....
LaSalle	unknown	2,445.00
Lincoln	8,320	.....
Livingston	7,040	.....
Madison	12,160	760.50
Morehouse	10,240	6,472.00
Natchitoches	12,800	4,284.84
Ouachita	7,680	2,021.32
Pointe Coupee	7,040	.....
Rapides	12,160	844.70
Red River	6,400	.....
Richland	4,480	2,560.00
Sabine	16,000	.....
St. Charles	unknown	709.56
St. Helena	unknown	.....
St. Landry	15,360	994.00
St. Martin	7,040	6,853.65
St. Tammany	12,160	.....
Tangipahoa	10,880	.....
Tensas	13,440	.....
Union	14,080	.....
Vernon	10,880	.....
Washington	8,320	.....
Webster	12,160	.....
West Baton Rouge	2,560	1,525.00
West Carroll	4,480	.....
West Feliciana	8,960	.....
Winn	9,600	.....

ered and removed, the parish school board receives the royalties. Some parish school boards that have title to several sixteenth sections are today receiving splendid incomes.

Private Forest Land Ownership

It is a common practice to divide forest land owners into two broad groups, e.g., public and private. The latter group represents an extremely heterogeneous mass. To determine the distribution of private forest land owners in all the wooded parishes of the State would have been an enormous task, so a sampling procedure was used in this study. An effort was made to use at least two parishes in each of the major forest types as the means of determining ownership. Parishes were selected that are predominantly within one forest type.

TABLE 3.

Parishes Selected as Representative of Forest Types in Which Private Ownership of Forest Land is Dominant

Longleaf-Slash	Loblolly-Shortleaf	Bottomland Hardwoods
Beauregard	DeSoto	Concordia
St. Tammany	Jackson	Madison
	LaSalle	
	St. Helena	
	Union	

Parishes Selected in Each Forest Type

For purposes of forest management, the longleaf-slash forest type presents land use problems quite at variance from the others in the state. Old-growth longleaf pine stands, after cutting, restock only through a peculiar combination of circumstances infrequently prevailing.[7] The probability of the right combination of circumstances suitable to re-establishing longleaf is very low. It was one of these accidents, however, that has produced natural reproduction in localized areas and was the chief contributing factor in having the Great Southern Lumber Company, a large sawmill unit of Southeast Louisiana, undertake its reforestation work in 1924 in order to stay in business as a pulp company after the stands of old-growth longleaf pine timber had been exploited for sawlog purposes.

The two parishes belonging to the longleaf-slash type were selected for some other reasons in addition to their forest cover. Beauregard parish was chosen because there is no public ownership of forest land, it lies wholly within the longleaf-slash forest type, its soil is poorly suited for agricultural development, and the area has obviously been heavily exploited by wood-using industries. Moreover, only two small oil fields are situated in the parish, and it lies on the west side of the Mississippi River. Beauregard Parish is included in Forest Survey Unit No. 3. It is a forest

[7] The primary requirements are abundant seed supply, but seed years occur only at seven-year intervals; a mineral seedbed created by fire or logging; and freedom from wild (uncontrolled) fire for two years after establishment.

area which presents land problems that are the result of over-exploitation of forest resources. It was originally covered almost entirely with longleaf pine. The report on Survey Unit No. 3[8] calls attention to the great waste of forest land. Almost one-quarter of the forest land has been clearcut so that it is not reproducing. On this clearcut area, the average stand of sawtimber per acre is 40 board feet, very much in contrast with uncut longleaf stands that at the time of the Survey supported stands of almost 17,000 feet board measure. The second-growth stands of the area are very badly understocked; this fact, coupled with the constant tendency to cut timber too quickly, before it has had an opportunity to put on good volume increment, explains why the average second-growth longleaf has a volume of only 2,300 feet per acre. In its report on this Unit, the Forest Service states, "The most striking and serious defect in the forests of Southwest Louisiana is the appalling acreage of denuded lands . . . 54 percent of the longleaf land is in this unproductive condition."[9]

The longleaf-slash forest type straddles the Mississippi River. Beauregard Parish, described above, was selected as representative of the type west of the River. Mention should be made that slash pine (Pinus caribaea) occurs naturally only east of the Mississippi River in the three easternmost parishes, St. Tammany being one. This means, therefore, that the natural obstacles to forest management in St. Tammany are less than if longleaf pine occurred to the total exclusion of other pine species, as in the case of Beauregard Parish. St. Tammany lies in the Forest Survey Unit No. 4. In its publication[10] on this unit, the Forest Service presents data showing that it, as in Unit No. 3 referred to above, is also badly understocked with timber and presents a distinct challenge to the State's ability to grapple with land use problems resulting from exploitation. On slightly more than half the forest area of 1,616,280 acres situated in this unit, the prevailing average volume of timber per acre is less than one-third of that found in Units in more productive condition. Although natural growing conditions are conducive to producing yields of approximately 300 feet board measure per acre per year, there was in 1934 an average of only 105 board feet of increment. For comparative purposes, however, it may be stated that the area is very similar to Unit No. 3, already described in connection with Beauregard Parish.

In the loblolly-shortleaf type, the five parishes chosen are DeSoto, Jackson, LaSalle, St. Helena, and Union, all considered to be representative of the parishes lying within this vegetational association. In all of these parishes there is a marked absence of public ownership. This forest

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[8] Forest Survey Release No. 43, *Forest Resources of Southwest Louisiana,* mimeo, Southern Forest Experiment Station, U. S. Forest Service, April, 1939.

[9] *Ibid.,* p. 33.

[10] Forest Survey Release No. 39, *Forest Resources in the Longleaf Pine Region of Mississippi and East Louisiana,* mimeo, Southern Forest Experiment Station, U. S. Forest Service, Mar., 1939.

type, described in the report on Forest Survey Unit No. 5,[11] is one bright spot in the forest resource picture of the State. In this Unit are situated DeSoto, Jackson, and Union Parishes used as representative of the type. Although St. Helen Parish was included in Survey Unit No. 4, its forest, economic, and industrial conditions are much more nearly comparable to those found in Unit No. 5. Stands of timber in this unit run somewhere between 9,000 and 13,000 feet board measure, the lighter volume being caused by the presence of hardwoods. The annual increment, on a weighted average basis, for the pine in this unit is 176 board feet, the highest for any unit of the State. This is merely a relative condition, for the report of the Survey on this Unit No. 5 states,

> "Although the forests are at present in a state of rather low productivity because of frequent fires and short-sighted methods of cutting, the natural growth conditions are so favorable that it is possible, even now to change the present shrinking timber supply to an increasing resource that will continuously supply to the people of the unit raw material, employment, and a means of profitable land use."[12]

In the Delta hardwood type, an arbitrary selection resulted in choosing Madison and Concordia Parishes. Madison was the first choice because considerable land use study has been carried on there in connection with resettlement of the agricultural population. There are, moreover, some tracts of virgin hardwoods of high quality left in this parish. The parish has had stands of hardwood timber of unusually good quality. Concordia Parish was chosen largely because it is not contiguous to Madison Parish, but nevertheless lies wholly within the Mississippi overflow area. The Delta hardwood area is described in the Forest Survey report on its Louisiana Unit No. 1.[13]

As is the case with almost all the State's forest lands, the greater part of the forest has been overcut. The actual basal area of the typical acre contains only 56 square feet of timber of commercial species, although it could readily support 95 square feet. The Forest Service report[14] pointed out that approximately 60 percent of the sawlog volume is in inferior species, and 45 percent of the 60 is not used at all or is discriminated against. Because of heavy cutting in the past, not obvious to the untrained observer as is the case in Southwest Louisiana where there are large areas of clearcut land, 80 percent of the 2,689,900 acres of forest area in the Delta hardwood area is referred to as "non-commercial," meaning immature growing stock or low-grade material. The evidence collected by the Survey shows clearly that both the quality and quantity

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11 Forest Survey Release No. 31, *Forest Resources of Northwest Louisiana,* mimeo, Southern Forest Experiment Station, U. S. Forest Service, Mar., 1938.

12 Forestry Survey Release No. 31, *op. cit.*

13 Winters, R. K., Putnam, J. A., and Eldredge, I. F., *Forest Resources of the North Louisiana Delta,* U. S. D. A. Misc. Pub. 309, 1938.

14 *Ibid.*

of the annual increment of the forest capital in Unit No. 1 are considerably below its productive capacity.

On the basis of the parish selections mentioned above, approximately 39 percent of the longleaf-slash forest area was covered, 28 percent of the loblolly-shortleaf, and 7½ percent of the bottomland hardwoods. Admittedly this is an uneven degree of sampling, but the longleaf-slash is extremely important because forest management in this type is difficult. For the loblolly-shortleaf type, which is the most important forest type from the standpoint of ease of management and rate of growth, sampling in a little more than a quarter of the land area is considered to be adequate. For the bottomland hardwood type, there is only a 7½ percent sample as represented by Concordia and Madison Parishes. Actually the sample is higher than 7½ percent because a great deal of the bottomland hardwood area lies outside the Delta, probably half or more, but the Delta parishes are considered superior to the more southern parishes, such as Iberville and St. Landry, in hardwood timber productivity. That the soil in the Delta parishes has excellent producing power as farm land is illustrated by the fact that a great deal of land clearing and resettlement is now going on in Madison Parish.[15] That Madison Parish also has highly productive forest soils is corroborated by the statement in a report prepared by the Southern Forest Experiment Station: "In the western part of Madison Parish is located the finest stand of red gum timber found anywhere in Louisiana."[16] The general drainage of Concordia Parish, on the other hand, is relatively poor, so the soil is incapable of producing either timber or agricultural crops to the extent that occurs in Madison Parish.

Data Source on Land Ownership

Public records, prepared and revised annually by each Parish Tax Assessor, served as the source of the data on ownership of private forest land. The present system of real property assessment was initiated about 1915 when an attempt was made to standardize all assessment procedures. Assessment records now contain the name and address of the title-holder, total acreage owned, description of property location, amount of homestead exemption, and an itemization of the millage levy by individual taxing authorities such as state, parish, drainage district, school district, levee district, and special road taxes.

In the assessor's description of the property, all agricultural land is classified as A, B, or C. The State's instruction to the assessors on this point is as follows: "The best land in cultivation in the parish shall be Class A, the next best Class B, and the next best, Class C. A taxpayer

[15] Jones, Phillip E., Mason, John E., Elvove, Joseph; *New Settlement Problems in the Northeastern Louisiana Delta;* Louisiana Agricultural Experiment Station Bulletin 335, U. S. Dept. of Agriculture cooperating, 1941.

[16] Lentz, G. H., *Forest Conditions of Madison, Tensas, and East Carroll Parishes,* mimeo, Southern Forest Experiment Station, U. S. Forest Service, 1928, p. 14.

may own all three classes of land in cultivation."[17] Although for the purpose of this study these classifications had no importance, it was necessary to transcribe the amount of acreage in each land classification in order to obtain the aggregate amount of forest land attached to each farm.

The reliability of the records which are found in the assessors' rolls relative to acreage of forest and agricultural land may well be questioned, for as noted above, the data were originally assembled as of approximately 1915. Certainly there has been a shift in land use between 1915 and today. The shifts in land use frequently do not appear on the assessors' rolls. Some errors are apparent in many parishes because corrections are not made until title to the property is transferred. In several parishes, however, the assessors take a keen interest in their job and make a sincere attempt to keep the property classifications up to date. There is very little incentive for an assessor, however, to try to maintain correct acreages as to quantity of land that should be classified as agricultural A, B, and C, and the various categories of woodland, for in most instances the rate of valuation for class C agricultural lands and all forest lands is the same. If the assessor attempts to determine the volume of timber on lands, he immediately becomes liable to public criticism. Assessors, therefore, are inclined to value lands with timber at an amount just slightly in excess of cutover lands. In Beauregard Parish, for example, from a taxation standpoint, it makes no difference whether the "forest" land has much timber of sawlog size on it, or is denuded, for it is all assessed at $3.03 per acre. In Concordia Parish, the land with timber of sawlog size on it is assessed at $4.99, as against $3.38 for land completely cutover for sawlogs. In Jackson Parish there is a spread of approximately $2.00 between clearcut and lands having sawlogs on them.[18]

Classification of Private Owners

Forest Land Ownership Related to Land Ownership Objectives

A grouping of owners was made on the basis of the relationship that exists between the owner and his forest land. Three categories were adopted. These categories were designated as Class I, Class II, and Class III. A Class I owner is one who owns forest land as well as agricultural land in the parish studied. Usually the forest land was contained within the boundaries of the "farm." No attempt was made to determine whether the owner worked his agricultural land personally, or whether he surrendered partial control by renting or share-cropping. If an owner had title to three tracts of land, two of which were forest land only, but the third had some agricultural land attached to it, the owner would be con-

[17] State of Louisiana, Department of Revenue, Division of Property Assessments; *Suggestions to the Assessors and Police Juries for the 1941 Assessment,* Baton Rouge, 1941, p. 4.

[18] Craig, Ronald B., *Taxes on Forest Property in Nine Selected Counties in Louisiana, 1937-1941; in Nine Counties in Alabama, 1937-1941; and in Seven Counties in Mississippi, 1936-1941;* Southern Forest Experiment Station, U. S. Forest Service, Occasional Paper 101, mimeo., 1942.

sidered a Class I owner. A holder of title to forest land, to which no agricultural land was attached, would be considered a Class II owner. An industrial unit, a user of forest products, such as a pulp mill or a sawmill, was placed in the Class III category. If a unit of a forest products industry held title to land, but had discontinued the activity of its manufacturing plant because of lack of raw materials, the owner was placed in the Class II category.

In Table 4 are data on the distribution of owners and the land owned according to the three classes used. The data show that three-fifths of the owners of forest land have an economic stake in agricultural land as well as forest land. In the Delta hardwood area, almost three-quarters of the number of forest land owners have a direct interest in agricultural land. In the loblolly-shortleaf type, two-thirds of the forest landowners have agricultural land also, but in the longleaf-slash belt, less than two-fifths of the owners of forest land are also owners of agricultural land.

In the loblolly-shortleaf and Delta hardwood areas, Class II owners have title to one-third and one-quarter respectively of the forest land. In the longleaf-slash belt, the Class II owners are distinctive. They own two-thirds of the forest land area and constitute the largest category of owners. In the longleaf-slash forest type, the Class I owners, the agriculturists, own very little of the forest land area, viz., 10 percent, in contrast to the loblolly-shortleaf and Delta hardwood type where three-fifths and one-half of the forest area respectively is held by the Class I owners. As pointed out above, the Class II owners hold title to almost two-thirds of the land in the longleaf-slash forest type, while in the other two types these owners hold approximately one-quarter or less of the area.

In the Class III category, the loblolly-shortleaf type is outstanding. The forest products industries own two-fifths of the land area in contrast to approximately one-third in the other two types.

Considering the subject of Classes of ownership and area owned from a statewide standpoint, the data show that there is a relatively large num-

TABLE 4.

NUMBER OF PRIVATE OWNERS AND FOREST AREA OWNED IN EACH OF THE MAJOR FOREST TYPES

FOREST TYPE	PERCENT OF NUMBER OF OWNERS			PERCENT OF AREA OWNED		
	CLASS OF OWNER			CLASS OF OWNER		
	I	II	III	I	II	III
Loblolly-Shortleaf	66.43	33.21	0.35	38.81	20.51	39.56
Longleaf-Slash	37.70	61.72	0.58	10.80	64.26	24.50
Delta Hardwoods	72.94	25.50	1.56	48.33	23.62	28.04
All Types	58.10	41.41	0.49	31.36	35.42	32.51

ber of owners in the Class II, or non-agricultural, non-industrial category. This group becomes even more important if regarded from the standpoint of *area* owned, for in this ownership category lies the largest land area in the State, with the industrial owners next, and the Class I owners least important, owning less than one-third of the forest land area. The Class III, or forest products industry owners have title to a greater percentage of forest land in the loblolly-shortleaf forest type than in any other type.

Mention has already been made that the area covered by this forest type is the most important in the State. From the data just presented above, it is evident and important to note that the units of forest products industry that wish to operate their manufacturing plants continuously have found that the loblolly-shortleaf type is conducive for their objective.

Classes of Owners and Their Residence

It has been assumed that proximity of an owner to his land implies a superior form of management. Conversely, if an owner lives at a distance from his property, management, and therefore, productivity, would be of a low order. Insofar as non-industrially owned forest land in Louisiana is concerned, there is lacking any conclusive proof to support the above-stated tenet. In spite of the recognized lack of proof, however, it was decided to classify forest land owners according to their residence relative to their forest land. Absentee ownership has sometimes been considered as constituting an important component of land owners. The data might show that there were marked differences between the forest types.

Table A in the Appendix shows several distinct differences between the forest types with regard to distance from residence of landowner and his forest property. In the loblolly-shortleaf area, with favorable natural and institutional environment for forest management, only nine percent of the forest area is owned by absentee Class II owners. This in marked contrast to the longleaf-slash area where 47 percent of the forest land is owned by Class II non-resident owners. In the longleaf-slash type, absentee owners account for two-thirds of the forest land.[19] In the bottomland hardwood area, one-half of the forest land is owned by absentee owners. In the loblolly-shortleaf type, it is lower, being only two-fifths. Several of the units of forest products industries are owned by non-residents. It is significant, however, that for the forest type that is least productive, non-resident ownership, largely concentrated in the Class II group of owners, should account for the title-holding to so much of the land.

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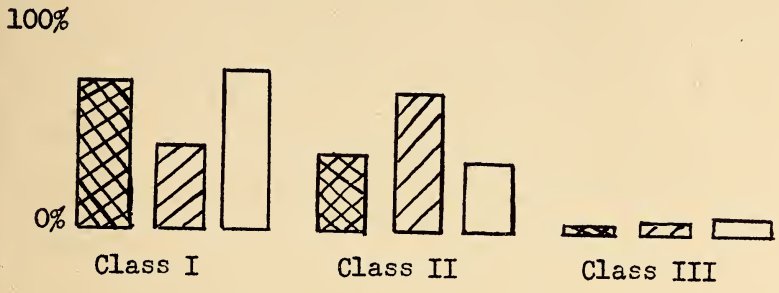
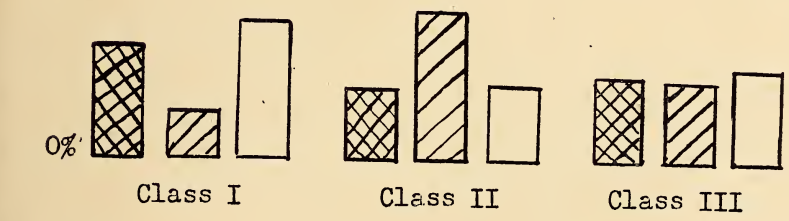
[19] An absentee owner is defined as one residing more than 25 travel miles from the property's closest point.

Ownership and Legal Identity

Owners in the nine parishes studied were placed in four categories, viz., individuals, corporations, estates, and partnerships. The first category, individuals, was further sub-divided into two classes, i.e., men and women. Inasmuch as women seldom acquire land willfully as a form of



Distribution of Number of Owners



Area of Land by Ownership Distribution

Explanation & Legends

forest types

loblolly-shortleaf

longleaf-slash

Delta hardwood

Classes of forest land-owners

Class I forest land as attached to farm units

Class II miscellaneous

Class III forest products industries

Distribution of Number of Owners and Area Owned by Major Ownership Classes in Each Forest Type.

wealth, it was assumed that, for the most part, the forest land owned by women was inherited.

The results of the groupings made according to legal identity reveal that individuals are by far the most numerous owners. They account for 83 percent of the total number of owners and for 39 percent of the forest land. If to the individuals are added partnerships, then almost nine-tenths of the owners are individuals. Corporations are not numerous as entities holding title to properties. They account for only two and two-thirds percent of the owners but hold title to 49 percent of all the forest land area.

TABLE 5.

LEGAL IDENTITY OF OWNERS OF FOREST LAND

LEGAL IDENTITY	FOREST TYPE			TOTALS
	Loblolly-Shortleaf	Longleaf-Slash	Bottomland Hardwoods	
	Percentages			
Men				
Number	61.50	71.98	65.66	64.89
Area	33.78	29.16	31.32	31.82
Women				
Number	18.70	17.84	12.60	17.99
Area	8.29	4.66	7.71	6.99
Corporations				
Number	2.37	2.58	6.80	2.68
Area	44.47	57.50	42.50	49.05
Estates				
Number	10.93	3.35	6.13	8.38
Area	7.20	2.36	3.89	5.01
Partnerships				
Number	6.50	4.60	8.81	6.06
Area	6.26	4.32	14.58	7.14

As shown in Table 5, there is no wide variation within any category of ownership between the three forest types. With regard to number of owners there is reasonably uniform distribution between the types except for corporations and partnerships. In each instance the number is higher in the bottomland hardwood type. Relatively, forest land owning corporations are almost three times more numerous in the bottomland type than they are in the other two forest types. In the case of partnerships, they are also more numerous in the bottomland area. In the case of estates, they are three times as numerous in the loblolly-shortleaf area than in the other two. This can probably be accounted for by the fact that the rolling uplands of North Louisiana have been settled for a longer time than the other two areas and have supported larger numbers of landowners than the other two. Cutover longleaf land is seldom good agricultural land, so agricultural development never flourished in the longleaf-slash type.

The forest type where a single group of ownership distinctly pre-

dominates the *area* is the longleaf-slash. In it, 60 percent of the land is owned by corporations. Individual men own only half that area in the same forest type. In the loblolly-shortleaf and bottomland hardwood areas, individual men own almost as much area as the corporations. For some reason, not readily apparent to the writer, the area owned by partnerships in the bottomland hardwoods is very high, being relatively twice as great as in the loblolly-shortleaf and three times as large as in the longleaf-slash.

Ownership and Size of Holdings of Forest Land

Data that have been presented above show that there are large numbers of owners. In the nine parishes studied, there are approximately sixteen thousand owners who own slightly more than three million acres of forest land. The data in Table 7 show, however, that size of holdings

TABLE 7

PERCENTAGE DISTRIBUTION BY AREA AND NUMBER OF OWNERS ARRANGED ACCORDING TO SIZE CLASSES AND FOREST TYPES

SIZE CLASS	LOBLOLLY-SHORTLEAF		LONGLEAF-SLASH		BOTTOMLAND-HARDWOOD		Total Number Owners	Total Area
	Number Owners	Area	Number Owners	Area	Number Owners	Area		
1 - 10	7.0	0.3	12.0	0.4	9.2	0.1	8.58	0.31
11 - 20	10.2	1.1	14.7	1.1	7.0	0.2	11.35	0.93
21 - 40	24.0	4.9	27.1	4.0	14.5	0.7	24.38	3.83
41 - 80	24.2	8.5	20.6	5.7	16.1	1.4	2 .64	6.26
81 - 120	12.6	6.9	8.0	3.6	8.0	1.1	10.96	4.70
121 - 160	8.4	6.3	6.5	4.3	6.5	1.3	7.73	4.74
161 - 320	8.2	9.7	5.8	5.2	11.4	3.6	7.66	7.15
321 - 640	3.5	8.1	2.7	5.4	10.4	5.7	3.65	6.76
641 - 1,280	1.3	5.7	1.3	5.1	6.5	7.4	1.58	5.81
1,281 - 2,560	0.5	4.5	0.6	4.7	5.6	14.9	0.81	6.48
2,561 - 5,120	0.1	2.0	0.2	4.8	2.3	10.1	0.25	4.45
5,121 - 11,520	0.05	2.4	0.2	12.1	1.4	15.6	0.19	8.05
11,521 - 23,040	0.05	5.8	0.1	8.4	0.7	17.2	0.10	8.79
23,041 - 46,080	0.03	11.1	0.1	12.1	0.3	20.6	0.07	13.19
46,081 - 69,120	0.02	7.6	....	....	....	....	0.01	3.79
over 69,120	0.02	14.9	0.05	23.2	....	....	0.03	14.84

varies between forest types. In the loblolly-shortleaf area, two-thirds of the number of owners have title to units of forest land less than 120 acres, or a quarter section, in size. In the longleaf-slash area, four-fifths of the land owners have title to units less than a quarter-section in size. In the bottomland hardwood type, a little over half the owners have title to forest land of less than a quarter-section. The distribution of the *number* of owners in all forest types tends to be normal but skewed to the left. Units of ownership are smallest in the longleaf-slash area. The curve of the ownership distribution for the bottomland hardwoods is bimodal and less skewed to the left for the other two types. This means

that there are more owners with relatively large holdings in the bottomland hardwood type than in the other two.

The curve of distribution of *area* owned does not even approximate normality. It is worth noting that the loblolly-shortleaf area has the largest amount of forest *acreage* in units of less than one-quarter section, accounting for 22 percent of all the forest land. In contrast to this, in the bottomland hardwood parishes, only 3.5 percent of the forest land area is in units less than one-quarter section. Other contrasts are also evident. In the longleaf-slash type, almost one-quarter of all the forest land is in ownership units in excess of 69 thousand acres, while in the bottomland parishes there are no units larger than 46 thousand acres.

Discussion of Observed Characteristics Related to Ownership

It is evident that each forest type has characteristics that are peculiar to it. These peculiarities are both natural and institutional. The Class I owners, as compared with Classes II and III, are most numerous in the bottomland hardwood type in number of owners as well as area owned. The forest land problem is more closely associated with the farm ownership in the hardwood bottomland of the Delta than in any other forest type. The Class II owners are most numerous in the longleaf-slash type where they also own twice as much land as any other category of owners. Significantly, in this forest type, approximately three-quarters of all the Class II forest land is held "sticky" due to natural as well as institutional obstacles. The natural obstacles have already been discussed. The institutional difficulties will be presented below. The Class III owners are least numerous in the loblolly-shortleaf area but own the greatest amount of acreage. This is undoubtedly due to the silvical characteristics of the forest type, for it was the ability of the type to reproduce itself in spite of man, that attracted industry to the fact that, given some encouragement, the pine lands would become very productive and make it possible to continue the operation of the timber processing plants indefinitely.

Absentee ownership of Class I lands is distinctive in the bottomlands where large farms are characteristic. On the other hand, in the rolling upland area on which the shortleaf-loblolly type prevails, four out of every six Class I owners reside on their land and these resident owners account for half of the Class I forest land. Absentee ownership of Class I land in the loblolly-shortleaf area is unimportant. It is worth noting that in the loblolly-shortleaf area, where there is a great deal of forest land attached to farms, the resident and contiguous farm land or Class I owners are almost as important as in the bottomland hardwoods and very much more so than in the longleaf-slash type.

For the non-industrial owners as a group, i.e., the Class I and Class II owners, the area held by absentee owners is not important in the loblolly-shortleaf area, but accounts for approximately one-quarter of the area in the bottomland hardwood type and for almost half the area in the longleaf-slash.

II

PROPOSALS FOR INCREASING THE PRODUCTION OF TIMBER IN THE IMPORTANT FOREST TYPES

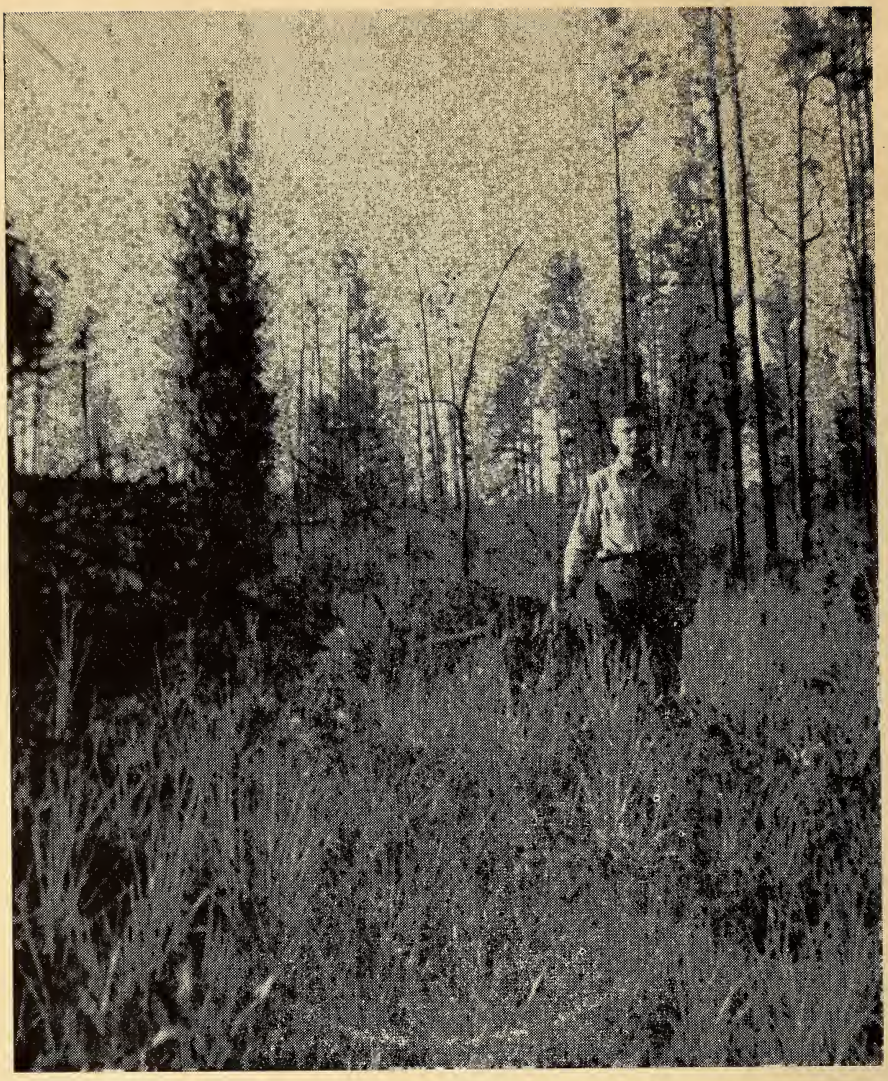
Inasmuch as each of the three forest types has ownership characteristics that are markedly different from the other two, any proposal to increase the productivity of the forest land must be related to the natural and institutional environment peculiar to each. Below are offered several alternatives that can be applied in each pine forest type to achieve the objective stated in the above topic heading. The merits and demerits of each alternative are discussed at some length in order that the reader may form his own conclusions concerning the validity of the conclusions herein presented.

The Loblolly-Shortleaf Area

It has previously been mentioned that the forest capital and current productivity of the loblolly-shortleaf type is much higher than for the longleaf-slash. It has been found, however, that the productivity of the pine lands in the loblolly-shortleaf type varies with the class of owner. The non-industrial owners' lands are producing pine timber at only one-third their capacity. The industrially owned land, held by the Class III owners with large processing plants, is producing timber at slightly better than one-half its efficiency. The larger units of the forest products industries know that they can sustain their operations for an indefinite period if they have adequate resources. They have undertaken to assure themselves a supply of timber by cutting on their own lands as little as possible, by practicing partial cutting when they do cut their lands, and by purchasing more forest land and abandoned farm land whenever favorable opportunities present themselves. For the most part, the forest products industries practice forest management in varying degrees on their own land.

The need for more forest management is most acute on the non-industrially owned lands, the Class I and Class II holdings. The heart of the forest land problem lies in the non-industrial lands. In area owned as well as in number of owners, the non-industrial forest land owners are more numerous than the industrial owners. Approximately two-thirds of the *non-industrial* forest land area is owned by agriculturists or by people who own agricultural property. One-third of the non-industrial land is owned by non-agriculturists, i.e., people whose realty holdings, other than their homesteads, are forest land unassociated with agricultural land.

In the loblolly-shortleaf forest type, approximately one-third of the non-industrial forest land owners wish to produce timber continuously on their forest land holdings. The land of these owners is more productive of pine timber than that held by the other two-thirds who have no



Typical Stand of Timber Owned by the Agricultural and Miscellaneous Owners. There Is Inadequate Provision for Obtaining Young Timber.

interest in continuous timber production. In Table 8 are the data that form the basis for the statement just made. In the column that is headed "productivity of pine land" is entered an index number that could range from 0 to 10. An index number of 3.33 means, for example, that only one-third of the land that is able to produce pine is really occupied by it. In the case of item "k" in the table just referred to, the index number of 5.28 means that for the pine forest land owned by forest products industry, the land is being used more efficiently than the non-residential land,

TABLE 8

PRIMARY LAND OWNING OBJECTIVE RELATED TO PRODUCTIVITY OF THE NON-INDUSTRIAL OWNERS OF FOREST LAND IN THE LOBLOLLY-SHORTLEAF FOREST TYPE

	OBJECTIVE	Productivity of Pine Land
a)	Farming by owner	3.79
b)	Farming by tenant	3.45
c)	Explored sub-surface values	4.80
d)	Existing timber values	3.10
e)	Timber growing values	4.31
f)	Speculative surface or sub-surface values	3.08
g)	Grazing	3.76
h)	Farming and timber growing by owner	4.70
i)	Farming by tenant and timber growing on forest land	4.47
j)	Other values	4.23
k)	To sustain a forest products industry	5.28

some categories of which are only 31 percent efficient. The data on productivity show that approximately two-thirds of the productive power of the non-industrially owned pine land is being wasted; almost half the productive power of the industrially owned land is wasted. The productivity of the non-industrial land is dwindling, but the productivity of the industrially owned land is rising. In the case of the non-industrial land it is largely due to both heavy cutting and frequent forest fires. In the case of the industrial lands, it is due to a desire to protect the future operation of the processing plant by assuring itself of a supply of timber. The productivity of the industrial land would undoubtedly be much higher if there were fewer and less extensive forest fires.

OBJECTIVES APPLICABLE TO THE AREA

Forest conservation is desirable in the loblolly-shortleaf area because this will increase the contribution of a renewable natural resource to its economy. The economic vitality of the area rests primarily on the land, i.e., agricultural crops, cattle, petroleum, natural gas, and timber. Approximately 70 percent of the land area is forest land which is producing at less than half of its capacity. If capacity production could be achieved, or more closely approached than is now the case, there would be increased social benefits in the form of (a) more economic income to the non-industrial forest land owners, (b) more forest products industries, and (c) more opportunity for employment because of the greater need for men in the processing of timber. The State stands to gain from increased timber production the stabilization of communities dependent upon forest products industries. Forest land could be acquired by the several levels of government for the purpose of dedicating the land to timber production, thus assuring the industries of timber resources and men of employment opportunities, but the South apparently prefers to

adhere to its tradition of private ownership of forest land. The essence of increasing the productivity of forest land, if the traditional ownership pattern continues, consists of convincing numerous owners that it is to their interest to practice forestry.

Alternatives for Attaining the Major Objective

With a degree of public assistance against forest fires and a not too satisfactory law pertaining to taxes, several large units of the forest products industries have consciously tried to insure continuity of a supply of timber by increasing the forest capital, or quantity of timber, on the lands they hold in fee. If progress is to be made in increasing the timber productivity of the non-industrial lands, a program will have to be followed in which all parties that have a stake in greater timber productivity will cooperate. There are several basic approaches.

First Alternative

The first alternative would be based on the principle of extending more public aid to those forest landowners who have already demonstrated an interest in forest management, viz., several units of the forest products industries. This can be done through more effective protection from damage by forest fires, a more workable forest tax law that delays collection of taxes on crops of timber until it is severed, and an increase in the amount of forest tree nursery stock for planting badly cutover areas or abandoned farm land. All these items follow the pattern of public aid already formulated in the federal law generally known as the Clarke-McNary Law of 1924. Inasmuch as taxation of real property remains within the province of the several States, Congress can take no direct action pertinent to this field, but it does make available funds to supplement State and private moneys for protection of private forest land from fire. The State has made use of the Clarke-McNary Law. In the fiscal year 1940-1941, there were only 82 private cooperators in the five loblolly-shortleaf parishes covered in this study. In these parishes, however, there were 10,204 forest land owners. There were 1,522,579 forest acres of which 450,087, or a little less than one-quarter, were participating in cooperative forest fire protection.

Public assistance in tree planting has been given. Although tree planting has received much publicity, it has contributed very little toward maintaining the productivity of the loblolly-shortleaf forest type. Some planting has been done by the forest products industries, but the industrial unit that has planted most lies in the longleaf-slash type where planting is more necessary to rejuvenate the forest productivity of the land than in the loblolly-shortleaf type. Each year the large units of the forest products industries purchase more than half of the forest planting stock produced by the State Division of Forestry in its forest tree nursery.

The present tax law, commonly referred to as the Reforestation Contract Law, has not been widely utilized by the forest products industries. In 1942 there were only three forest land owners out of 10,204 in the loblolly-shortleaf area who had taken advantage of this tax law. These land owners hold title to approximately 41,389 acres out of the 1,522,579 acres of forest land.

It is quite possible that, given more public assistance in the task of timber production, the units of forest products industries could further increase the production of timber on their own lands. An argument in support of this public policy might be justified on the grounds that the task of increasing timber productivity on the non-industrial lands is too difficult because of the large number of owners involved and the general apathy of these owners toward forest conservation, evidenced by the low state of productivity of their lands. Rather than spend public money to overcome owner apathy toward forestry, it can be further argued, expenditures should be concentrated on the lands of the owners who already have shown an interest in forest management.

Second Alternative

The economic alternative would be to enlarge the public program of education and leadership among the non-industrial owners in addition to carrying out the program proposed in the first alternative. There already exists the necessary legislation and public administrative agencies to conduct an enlarged program of education and demonstration. Federal funds are already in use for this purpose. The State's funds for education and demonstration on the lands of the non-industrial owners are matched by federal money through authority of the Cooperative Farm Forestry Law, sometimes referred to as the Norris-Doxey Law of 1937. This plan would make available to the two groups of forest landowners, the forest products industries and the non-industrial owners, the sort of public assistance each needs most, i.e., more assistance in forest fire protection and leadership in the application of forest management respectively.

Third Alternative

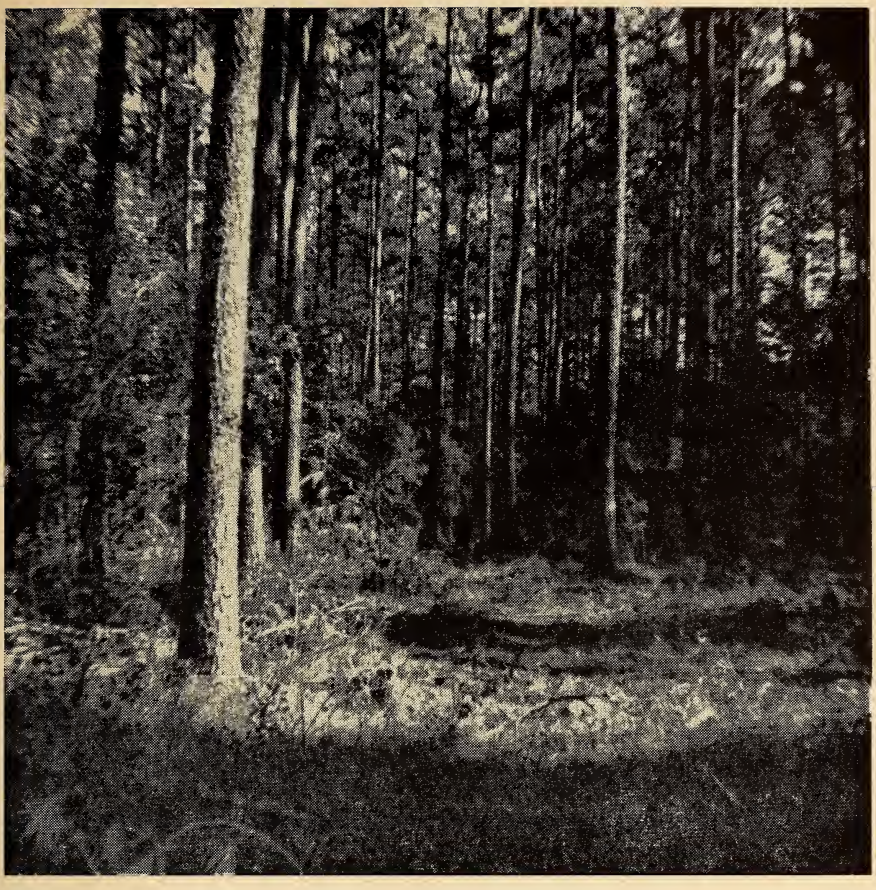
A third alternative would be to use a master plan, founded on education and incentives, wherein the forest products industries would actively join the several public agencies in selling forestry to private owners. This procedure rests on a recognition of community-of-interest in forest land productivity. Forest lands owned by single units of industry are usually scattered. These holdings are interspersed among those of the non-industrial owners, the majority of whom are apathetic toward forestry. These non-industrial owners have as their primary motive for retaining title to their forest land some purpose other than the continuous production of timber. The non-industrial landowners who live on their land, or adjacent to it, or at a considerable distance, have no motive in preventing

fires from burning on their own lands or on adjoining lands held by forest products industry. If genuine progress in timber production is to be made on the Class III lands, then a considerable number of the proprietors of the non-industrial land must be convinced that forestry is a form of land use that they, too, can employ to their economic advantage. Forestry has too long been regarded as applicable only to lands held in large blocks. The owner of a forty, or a few forties, is as much justified in practicing forestry as is the owner of 100 forties.

There is such an intermingling of forest lands in the three ownership categories, viz., industrial (Class III), agricultural (Class I), and miscellaneous (Class II), that each should recognize that there is a mutual advantage in practicing forestry. Only when many owners in each category of owners wish to practice forestry will substantial progress be made in forest fire protection and timber production. The forestry program of any industrial, as well as the whole related timber economy of the area, is seriously jeopardized by the apathetic attitude toward forestry by the non-industrial owners who are very numerous and who own three-fifths of the forest land.

Today public agencies concerned with forestry operate on a functional basis. The State Division of Forestry has concerned itself almost exclusively with forest fires, but has recently started educational work in forest management through demonstrations to some of the non-industrial owners on a few Norris-Doxey projects. The Agricultural Extension Service works at the forest management problem on farm lands also through a few Norris-Doxey projects, but is usually compelled to sell forest management without benefit of forest fire protection because of the nature of the forest fire protection system operated by the Division of Forestry. For example, 95 percent of all the forest land listed with the State for cooperative forest fire protection in 1943 is owned by corporations. Forest management is the synthesis of protection, silviculture, marketing, and utilization of timber and cannot be neatly compartmented. It rests on four legs. If any one leg is removed, it disturbs its equilibrium and utility. The non-industrial land certainly requires public assistance in protection from fires. But the non-industrial lands will not attain even reasonably high productivity unless some agency assumes leadership in providing it with forest fire protection as well as in carrying forest management practices to the landowners.

From the foregoing discussion it is obvious that a means to pool and implement the timber-producing objectives of all classes of land-owners must be designed. A Forest Conservation District, discussed in detail below, would make it possible to put to work the community-of-interest represented by the intermingling of forest lands of numerous owners. The interests of each group of owners needs to be pooled, through the democratic process, in an organized effort to increase the productivity of forest land in a specific locality.



Typical Stand of Timber Owned by Agricultural and Miscellaneous Owners
P. S. I. 8

The Forest Conservation District

There can be no doubt that the intermingling of owners of forest land in the loblolly-shortleaf forest type has created a community-of-interest in forest land. The productivity of the forest land of each owner is directly related to the attitudes that the adjoining owners have toward their forest land. There is an inter-dependence for adequate fire control which demands that each owner recognize and redeem his responsibilities as a landowner. One-third of all the non-industrial owners wish to grow timber continuously. Some of the remaining two-thirds will not wish to practice forestry, but many will, if given the opportunity, i.e., the necessary leadership and incentives. The larger units of the forest products industries wish to practice forestry. A vehicle is required to help all classes of owners to work together to obtain more timber production.

The most important single function of the District is to bring to a focal point local interest in forest conservation. The focus would occur through a five-member committee composed of local forest landowning citizens. The Committee would serve as the medium for establishing a partnership between the several private landowners and the public. Inasmuch as the public has a vital interest in having most of the privately owned forest land well managed, the State, assisted by the federal government, should be willing to (a) finance the cost of forest fire protection, (b) supply forest tree planting stock, (c) provide technical personnel necessary to administer forest fire protection and for the demonstration of forest management, (d) offer assurance of reasonable property taxation, including compensation to parishes for loss in revenue caused by Reforestation Contracts, and (e) assist landowners to secure credit when needed for forestry operations. All this activity in a district would clear through the Forest Conservation Committee.

In return for the public's assistance, landowners who wish to practice forestry should be willing to sign an agreement in which they request that their forest lands be examined by the Committee's forest technicians, that the foresters prepare simple recommendations for forestry practices that conform with standards determined by the Forest Conservation Committee, and that they agree to manage their lands in conformity with the recommendations.

Administrative Details

A Forest Conservation District would be a unit of government, within the State, having limited autonomy, and covering an area of 250,000 to 1,500,000 gross acres. Between one-half and three-quarters of this area would probably be wooded. The boundaries of a District would be established by the State forestry administrative agency. In order to activate a Forest Conservation District, 25 landowners, or landowners holding title to 20 percent of the forest land in the District, would be required to petition the State forestry agency for cooperation in forest protection and forest management. Upon the receipt of the petition, a referendum would be held. If a majority of the votes cast by the constitutionally qualified voters in the District favor the activities proposed by the District, it would commence to function.

Each District would be administered by a District Forest Conservation Committee of five persons, three of whom would be elected and two appointed. The Committee would establish rules of forest practice for the cooperating lands in the District. These rules would be within a broad framework of forestry practices prescribed by the State forestry agency.

All qualified voters in the District would be permitted to vote for the three Forest Conservation Committeemen chosen by his method. Two Committeemen would be appointed. One would be selected by the State forestry agency, the other by the State Agricultural Extension Service.

Qualifications for Committeeman would be that (a) he be a registered voter in the District, and that (b) he own in fee at least twenty acres of forest land.

Each District Forest Conservation Committee would be required to have an executive officer. His title would be District Forester. His sole qualification would be that he be a graduate forester. He would be selected by the State forestry agency after consultation with the District Committee.

The District Committee, through its Forester, would offer forestry aid to forest landowners. This aid would consist of (a) forest protection, (b) marking timber preparatory to a felling, (c) guidance in artificial reforestation, (d) aid in financing forestry operations, (e) recommendations for securing equitable taxation of forest land, (f) assistance in locating timber markets, and (g) other suitable forestry activities. This aid would be available only to the landowners who have signed an agreement that commits them to cooperating with the District Forest Conservation Committee. If an agreement has been signed, then aid as just described would be provided gratis.

The activities of the Committee would be financed by the State forestry agency supplemented by whatever other money was made available from private or public sources within the District. The amount of State funds alloted would be determined by the demonstrated needs of each District and the available resources. A Forestry District would have no taxing authority.

The plan just presented is based on the democratic process. Expenditure of public funds is justified by the fact that if there is a social gain from the practice of forest conservation, then society should be willing to bear some of the costs. The social benefits consist of community stabilization by producing forest resources upon which forest products industries depend for their operation, in the increase in taxable wealth created by more abundant forest resources and the industries dependent upon them.

Difficulties Operating Against its Adoption

The Forest Conservation District plan constitutes a means of amalgamating and unifying within specific, prescribed areas, activities of public and private agencies dedicated to increase the productivity of privately owned forest land. There are, however, several reasons that can be advanced for denying that it is a satisfactory vehicle for gaining the goal already stated.

An argument that can be advanced against its adoption is that it will require new State legislation. It is proposed that each District be a political entity with limited autonomy. Some people will contend, and not without cause, that already there are too many units of government.

What is needed is fewer, not more, political entities. Government, however, is part of the Anglo-Saxon tradition. It was originally conceived to provide a framework within which orderly progress could be made toward a socially desirable goal. It is this conception of government, rather than the negative, coercive sort, that would apply to the community-of-interest proposal referred to above as the Forest Conservation District. The critic of the District proposal may point out that the State Land Use Planning Committee[20] recommended that the Legislature pass an enabling act that would allow parishes to pass their own regulations with regard to forestry practices on privately owned lands. The disadvantage in this is that the police jury would hardly be qualified to devise and enforce satisfactory regulations. Admittedly it could consult with the State forestry agency, but the proposal advanced by the Planning Committee persumably would not make this mandatory. Even though it did, the Police Jury could still legally proceed to do as it wished and ignore any or all recommendations. The Sheriff is the law enforcement officer at the parish level of government, but it is very doubtful whether the Sheriff's office should be used to enforce regulations pertaining to environmental conditions on which good silviculture is based.

Critics of the proposal could well inquire why the forest land problem on the non-industrially owned land should not be attacked through the Soil Conservation Districts rather than through another unit of government as it is here proposed. The reason for proposing the Forest Conservation District, as another entity of government, is that the United States Department of Agriculture continues to attack the land use problem on a project basis. The Soil Conservation Service deals primarily with the soil. This gets it into contact with the agriculturists, inasmuch as they are the people who utilize the soil most intensively and therefore can most readily deplete its productive capacity. The Soil Conservation Districts, therefore, have primarily the agronomic rather than the comprehensive land use approach. Admittedly forest conservation is not ignored in the activity of the Soil Conservation Districts, but nevertheless, it receives only incidental consideration. The Agricultural Adjustment Administration and the State Agricultural Extension Service are closely allied with the Soil Conservation Service in promoting better forest management on farm forest lands.

The agricultural groups, however, cooperate with the forestry agencies, viz., the United States Forest Service and the State Division of Forestry. The Soil Conservation Service cooperates with the State Division of Forestry in the management of farm forest lands. It approaches this task through Norris-Doxey projects administered by the State Division of Forestry. The forest fire problem on the farm lands, therefore, becomes an orphan child because of the project approach. The Agricultural Ex-

[20] State of Louisiana, *A State Program for Agriculture with Respect to Drainage, Forestry, Farm Tenure, Soil Conservation, New Land Settlement, Rural Health, and Housing;* State Land Use Planning Committee, Baton Rouge, mimeo, 1941.

tension Service cooperates with the United States Forest Service in contacting farm land owners, just as does the Soil Conservation Service in working with the State Division of Forestry. This cooperative work between the State Agricultural Extension Service and the United States Forest Service is possible because of the funds available through the Norris-Doxey Law, the same law which makes possible the working relationship between the State Division of Forestry and the Soil Conservation Service. The Agricultural Adjustment Administration has rewarded farmers for planting forest tree seedlings. When the financial inducements are large, some farm land owners plant forest tree seedlings. When the subsidy is small, few seedlings are planted.

The United States Forest Service is charged with extending forest conservation practices. As a Federal bureau, it is not concerned with crop land. It helps the industrial owner with forest fire protection through the State Division of Forestry, aids the farm owner via the farm forestry projects administered by the Agricultural Extension Service, and reaches the non-industrial, non-farm owner via forest farming projects directed by the State Division of Forestry.

It is likely that each public administrative agency will resist any development that will subordinate its own administrative function to that of the evident community-of-interest represented by the numerous owners of forest land in specific localities. The sober fact remains that if the community-of-interest approach is to be used, and it is the foundation of the Forest Conservation District proposal, then the several public agencies must surrender some of their vested interests.

A few years ago the "Tree Farm" idea[21] was born in the Pacific Northwest. It represents a drive by the forest products industries, particularly the lumbermen, toward getting more forest management on privately owned lands. The Pacific Northwest has an ownership pattern not dissimilar to that found in the South. Numerous non-industrial individual holdings are intermingled with the industrial ownerships. The forest products industries conceived the Tree Farm project as a means of implementing the community-of-interest in forest land productivity. In the Willamette Valley, for example, private forest land owners have pooled their lands under single management. For "Tree Farms" to become popular and attain their goal, the project needs a sponsor and that sponsor must have reasonable assurance of a continued existence. The "Tree Farm" plan and the proposed Forest Conservation District have an important feature in common. Both recognize the apathy toward forestry by the non-industrial forest land owners. Both propose to promote more forestry among the non-industrialists. The path that each follows to attain its goal, however, is divergent. The success of the Tree Farm plan rests primarily on the promotional ability of the sponsoring organiza-

[21] West Coast Lumbermen's Association and Pacific Northwest Loggers' Association; *West Coast Tree Farms: The Next Step in Timber Growing in the Douglas Fir Region;* 1943.

tion. No reward is offered for the social gain that is conveyed by forestry practice. In the Forest Conservation District plan, the social benefits of forestry practice are recognized by aids in technical guidance, forest fire protection, forest planting stock, taxation, and credit. Many private owners dislike any form of public participation in their activities. For this reason, Tree Farms might have considerable appeal. But in the Northwest, Tree Farms are sponsored by the forest products industries. In the South, this would have questionable value. The plan, however, requires a sponsor. If the State forestry agency acts as sponsor, the result will merely be further compartmentizing of forestry, an additional project in a field which is already overburdened with projects. The Forest Conservation District provides for a maximum participation of forest landowners in establishing their own standards of forest conservation. Offered as it is by a unit of government with adequate local representation the Forest Conservation District plan should allay any suspicion, by the non-industrial owners, that the plan has dubious merit because it promotes a project from which the forest products industries would be the principal beneficiaries.

The three alternatives that have been discussed above are intended to develop forestry through promotive measures. Another alternative, the one that follows, would increase forestry practices through the use of the police powers of government.

The Fourth Alternative

The fourth alternative would be to accept public regulation as sponsored by the United States Forest Service, or a modification thereof. This would certainly restrain the units of forest products industries in their cutting methods on the non-industrial lands. The proposal to use the police powers of government for achieving forest conservation is not new, but the Forest Service is becoming more insistent that the only way to attain the goal of forest conservation for the nation is through public regulation of timber cutting on all forest lands.[22, 23, 24]

Handicaps to the Use of Each Proposal

Each alternative that has been offered above has disadvantages and obstacles that can prevent the attainment of the chief objective. In the case of the first proposal, assuming more public money were spent on Class III or industrial lands for protection from fires, the emphasis would have to be on pre-suppression phases of forest fire protection. The history of forest fire protection in the United States shows that a reduction in the number of fires annually has been very meager. Possibly the edu-

[22] United States Department of Agriculture, Forest Service; *A National Plan for American Forestry*, Document No. 12, 73rd Congress, 1st session, 1933.

[23] United States Department of Agriculture, Forest Service; *Report of the Chief of the Forest Service*, 1940.

[24] Watts, Lyle F., "Comprehensive Forest Policy Indispensable," *Journal of Forestry* 41:783-791, 1943.

cational methods employed for preventing forest fires can be improved. Results obtained from educational methods are difficult to determine with any degree of accuracy. Numerous fires are due chiefly, however, to public apathy. Since the *number* of forest fires can't be very well controlled, fire protection agencies have tended to emphasize the phases that make it possible to control fires before they became large. It is reasonable to expect that, instead of expending more public money on protecting a specific category of land, it would be preferable to demonstrate to the non-industrial landowners the economic advantages of practicing forestry. In so doing, a public sentiment would be built up, among the people who own and live on the non-industrial forest land, that would lead to reducing fires caused by carelessness and eventually outlaw uncontrolled forest fires. Acceptance of the first alternative would be a poor one inasmuch as it would not have the cooperation of the 99 percent of the forest landowners who have title to 60 percent of the forest land. Expenditure of funds for forest fire protection, with emphasis on pre-suppression and suppression, soon reaches the point of diminishing returns.

The second proposal attacks directly the problem of increasing the productivity of the non-industrial lands through overcoming the apathy of the non-industrial owners toward forestry. It, too, contains a distinct weakness; e.g., it consists of drawing a line of distinction between the industrial and non-industrial owners. As pointed out before, there is actually a community-of-interest, recognized or not, in all wooded areas in the forest type under discussion. The non-industrial forest land problem has been, and now is, approached chiefly through Norris-Doxey projects administered by three separate State and Federal agencies. Forest management is stressed on farm forestry and forest farming projects without the organized public assistance, through the Division of Forestry, against forest fires. The basic weakness lies in the project approach, compartmentizing forest management and fire protection activities. The alternative under discussion rests primarily on increased public funds and therefore on leadership by government rather than from local, grass-roots belief in the project. The weakness of this approach lies in ignoring the principle of the community-of-interest everywhere evident in the loblolly-shortleaf area.

The fourth alternative is founded on the use of the police powers of government. The bills that have been introduced into Congress to implement the Forest Service proposal place the whip hand in the Federal government. In the Federal proposals, the democratic process has been ignored; forest conservation is to be achieved through coercion. Public regulation, especially that emanating from the federal level of government, is diametrically opposed to the grass-roots, democratic form of control comparable to that which is now used by Soil Conservation Districts. Regulation of itself is negative without accompanying positive action. If forest fire protection administration is left to each State, as assumed by recent federal proposals, it further assumes that each State is

willing and able to bear the increased financial burden. But there is no advantage in attempting to increase forest land productivity without adequate protection from fire. The Federal proposal still further assumes that owners of forest land depleted of timber will be willing and financially able to plant forest tree seedlings. With the taxation of forest land a prerogative that rests with each State, and its lesser units of government, it must be further assumed that the various levels of government will control taxation so that timber cutting controls will not result in direct confiscation of forest land. These assumptions may all be faulty. It is extremely doubtful whether public regulation, as now conceived by the United States Forest Service, will achieve the results desired.

Several States have recently enacted regulatory legislation. The first was Oregon in 1941, and more recently, Maryland. Inasmuch as this technique for obtaining forest conservation in the United States is still new, it is now too soon after the initiation of the efforts of the State to make a satisfactory appraisal. Oregon is a State which has a large economic stake in maintaining the productivity of forest land. The lumber industry is reputed to have supported the regulatory legislation. The economy of Maryland, on the other hand, is not nearly so dependent upon timber resources as is that of Oregon. The success of the legislation will be determined by the manner in which the State Forester's authority is employed.

Longleaf-Slash Area

Of the three major forest types in the State, the longleaf-slash ranks lowest in several ways. Data have been presented showing that the forest capital, per acre basis, is only one-third of that of the loblolly-shortleaf area, in which the productivity of the forest land is less than one-half its potential capacity. The depleted condition of the forest land in the longleaf-slash type is due to both natural and institutional obstacles. There exists an inter-relation between the two that cannot be ignored and, by the same token, require joint consideration if the surface of the area will be restored to its former productive condition.

Recapitulation of Outstanding Characteristics of the Area

The forest land is owned predominantly by Class II owners. This ownership category accounts for 64 percent of the forest land. Only 11 percent of the land area is in Class I holdings. In number, the Class II owners are typified by non-resident owners, chiefly persons residing either in the Mid-West or the vicinity of New Orleans. In area, the Class II owners are typified by forest products industries that have liquidated their timber assets. The land is the residue of their former manufacturing operations.

Corporations account for only three percent of the land owners, but for 60 percent of the area. Individuals, mostly men, own 34 percent of

Cut Over Land Made Productive Through Planting.

the land area. In St. Tammany Parish, a large number of individuals, relative to other parishes, cooperate with the State Division of Forestry in forest fire protection. In contrast to St. Tammany Parish, the other parish selected for the longleaf-slash area, viz., Beauregard, has very few cooperators in forest fire protection.

Large land holdings are found in this forest type. Almost one-quarter of the land area is held in single ownerships of more than 69,000 acres. Sixty-five percent of the forest land area is in ownership units in excess of 1,280 acres.

The silvicultural characteristics of longleaf pine have been referred to previously in this paper. This species not only has peculiarities that deter natural reproduction, but the forest fuels that are found on longleaf sites are conducive to frequent forest fires. In St. Tammany Parish, where slash pine mixes with longleaf pine in the flatwoods, the first-

mentioned species reproduces easily, provided there are present a number of seedtrees and fire is excluded or adequately controlled. Very seldom are both of these requirements present.

Longleaf and slash pine almost invariably utilize soils that, for most agricultural purposes, is considered inferior because of the compact B horizon. For this reason fewer of these lands have moved into agricultural use than is the case in the other forest types. Land title has therefore become "sticky." With large acreages of forest land on their hands, title "stickiness" probably made corporations speculators in sub-surface values. Title has been retained to the surface only because it gives the owner control over sub-surface values.

The Influence of Sub-Surface Values

More than a decade ago there began an eastward movement of exploration for geological formations that are likely to produce petroleum. Even on the remotest forest truck trails in Louisiana today one finds tags, colored paper, and colored cloth indicating that seismograph crews have been in the area prospecting for the subsurface geological structures that contain petroleum. The individual landowners have had their speculative appetites whetted by oil companies who have taken out leases on land for the privilege of drilling and, if petroleum is found, return to the owner, provided he still owns the mineral rights, a fraction of the value of the petroleum at the time it is removed. The very logical effect of this has been for those people who own forest land, particularly forest land detached from a farm unit, to retain title rather than risk the chance of not being able to cash in on a possible future value. This fact is probably one of the outstanding reasons why the State has relatively little tax delinquency as compared with some other southern States, and why land seldom remains tax delinquent very long. Viewed from a short-term point of view, this situation is one that benefits the private landowner tremendously because of the income he derives from mineral lease payments on his property. These payments range anywhere from $0.25 to $1.25 per acre per year. If a substantial amount of acreage is owned, the landowner derives an excellent income in spite of the condition of his forest land. Through the leasing arrangement, exclusive of royalties paid for the removal of petroleum, millions of dollars annually are paid to landowners. Even under favorable circumstances and good management, the income from the production of timber would scarcely be in excess of $2.50 per acre per year.

In the case of lands under oil lease, the income to the owner from these oil leases, or any royalties obtained from lands that have producing wells on them, is seldom used to create or increase surface values in the form of forest capital. Instances could be cited where some forest products industries have increased their land holdings from revenue derived from petroleum production, but these are very small in number. In other words, the petroleum industry acts as a deterrant to the practice

TYPICAL VIEW OF FOREST LAND THAT WILL PRODUCE ANOTHER CROP OF FOREST TREES ONLY IF PLANTED.

of forestry on lands where the natural obstacles to forest management are high.

When one considers the nature of the mineral rights in Louisiana, it is quite understandable why it is distinctly to the advantage of the landowner to retain full property rights to his forest land, even though the land has been exploitive to the extent of reducing the forest capital to a negligible amount. If the landowner permits his property taxes to become delinquent, then the parish either sells the land for at least the taxes outstanding against it, or permits title to be adjudicated to the State. In any event, the landowner loses control of all his rights to the property, including his mineral rights. On the other hand, the landowner is unable to convey fee simple land title to another person or corporation and retain an interest in the mineral rights for a period in excess of ten years, for Louisiana law considers the ownership of mineral rights held by someone other than the holder of the surface rights, to be in the nature of a servitude. Daggett states, "Article 618 of the Revised Civil Code of 1870 declares the life of a discontinuous servitude to be ten years unless this prescriptive period is interrupted or suspended or extended."[25]

With so many owners of forest land continuing to hold title because of the speculative appeal, it would seem that they would be willing to

[25] Daggett, Harriett Spiller; *Mineral Rights in Louisiana,* Baton Rouge, 1939, p. 33.

lease the surface rights for a long period of time to forest products industries or individuals primarily interested in timber production. In this manner their financial obligations would be reduced, for the arrangement would at least cover the property taxes levied against the land and timber. Owners are extremely reluctant to do this, for although their primary interest in the land pertains to the mineral rights, the great majority of owners tenaciously cling to the surface rights, even being unwilling to seriously consider the subject of leasing them for timber production.

Alternatives

In the longleaf-slash forest type, certainly for the type as it occurs west of the Mississippi River, the community-of-interest is not present to the degree found in the loblolly-shortleaf type. The natural obstacles to the practice of forestry are high and are reflected in the denuded condition of approximately a million acres, or one-third of the area now occupied by the type. The natural difficulties, coupled with institutional factors, present a situation of a much different sort than the one encountered in the loblolly-shortleaf area. It is recognized that within the longleaf-slash type there are areas in which the community-of-interest proposals are applicable. The alternatives that will be discussed would apply only to the lands of the longleaf-slash type where the community-of-interest is absent and where the natural and institutional obstacles create an environment unsuited to the practice of forest conservation by private owners.

It is assumed that the public can not expect a private forest land owner to make large capital expenditures in order to rehabilitate forest land. Most landowners are "economic men." Where the productivity of forest land must commence by planting forest tree seedlings, i.e., if the land is almost bare, or worse, covered by weed species, the chief beneficiary from the land's restoration to productivity will be society. The lifetime of an individual financially able to undertake such reforestation expenditures and attendant risks would be inadequate to enjoy the financial benefits of such an undertaking. Therefore, where large capital investments on a per acre basis are necessary in order to rehabilitate forest land, the public will have to assume a very positive role and bear the whole cost. There are at least two land economists, however, who believe that there are private owners who would be willing to borrow capital in order to reforest cutover lands. Hammar and Mussman[26] are exponents of a plan whereby the Federal government would practice forestry on leased private lands, borrow money for this purpose from a Federal credit agency created for making loans of this type, and then return to the landowners an agreed-upon share of the stumpage value of the forest products at the time they are severed. The whole plan, how-

[26] Hammar, Conrad H. and Mussman, Albert H., "Interest and Credit Costs in Forest Restoration," *Jour. of Forestry* 38:37-43, 1940.

ever, assumes that the owner is willing to enter into an agreement of this sort and pledge his land as collateral. It is extremely doubtful whether this assumption is correct, especially in Southwest Louisiana where over 1,000,000 acres of cutover longleaf pine land will produce timber again only if reforested by planting or through other measures, where the landowners' greatest interest is in sub-surface values.

There are several possibilities that can be considered: first, the State request the Federal government to purchase the lands for use as national forests; second, enact enabling legislation to allow the State to lease the surface rights of the forest lands; third, the State take title by use of eminent domain if the owners persist in refraining from using the surface merely in order to have title to the subsurface rights; fourth, increase the assesments of unproductive forest lands if the owner is unwilling to lease the surface rights, thus forcing these lands into public ownership through tax adjudication, and then have the State rehabilitate them; and fifth, abandon the idea of having the lands produce crops of timber, but dedicate them to the production of livestock instead of timber. Each proposal will be discussed below.

Federal Ownership

The chief advantage of having the Federal government purchase the lands would be that of relieving the State from financing the operation, for the investment necessary for such an undertaking would be considerable. If the lands were used for National Forest purposes the State would benefit from eventually having forest resources utilizable to increase employment opportunities. The Forest Service has abundant experience in the administration of forest land and an excellent record for redeeming responsibilities attendant upon stewardship. An important disadvantage to Federal acquisition would be lack of current income from taxes now accruing to local units of government. Today there is relatively little tax delinquent land in the areas where the depleted forests are. Private ownership is very tenacious because of the sub-surface speculative values. If private ownership rights are forfeited to the public because of lack of payment of taxes, the owner loses all rights: rights to the surface, sub-surface, and supra-surface values. Hence private ownership continues in the unproductive forest land.

As was commented upon at some length earlier, the desire to retain title to mineral rights constitutes an obstacle to the transfer of title to land. The owner continues to hold title to his land depleted of forest resources, even though the sole purpose in retaining title is speculative in sub-surface values. With no intention of ever practicing forestry, he will be unwilling to convey title to the Federal Government unless he is permitted to retain indefinitely his rights to the sub-surface values. With Louisiana's present mineral laws, however, this is impossible. There is ample precedent for the Forest Service's procurement of title to land

wherein the private owner reserves the mineral rights indefinitely, but this has occurred only in States with mineral laws permitting this. It would seem that most landowners, at least those who retain title purely because of its speculative appeal, would be eager to relinquish the surface rights and their attendant obligations such as payment of ad valorem taxes, if they would be permitted to retain the mineral rights for more than a ten-year period. In its present form the servitude interpretation of the mineral rights presents a tall, although not necessarily insurmountable barrier.

In order to make public acquisition attractive to the private owner who attaches so much value to sub-surface rights, the Federal government could make arrangements to lease to the owner, for a very nominal sum, the mineral rights. It is possible that the legal department of the Federal government would object to acquiring title when sub-surface rights would be assigned to the previous owner, but precedent has been established for such action by land purchase for national forest purposes under comparable conditions in Pennsylvania.

Obtaining Ownership of Land Through Compulsion

The acquisition of surface rights, or title in fee discussed above implies a willing buyer and a willing seller. In event that the present owners are unwilling to relinquish control over the surface rights, then the State can resort to its power of eminent domain and acquire title so that the surface can be put to work. This would be a very drastic step to take in a State that traditionally has attached so much importance to the rights of private property. With sub-surface values so difficult to estimate, the acquisition of title through the power of eminent domain might cost the State an excessive amount. Public opinion would probably not approve such action. It would be justified only if there could be established a clear, vital need for putting the surface of these lands to work producing timber. For the public to accede to such action would require a much more acute need for timber supplies than now exists or will exist in the near future. Although an objective analysis of the problem calls for putting the surface to some use, and timber production is well adapted to the soil and climate, the realism of the situation prevents the use of the State's right of eminent domain as the means of rehabilitating the forest land.

Assuming an unwilling seller, another alternative would be to raise assessment values to deprive the owner of his title by forcing the land into tax delinquency, let title be adjudicated to the State, and then utilize the surface for producing timber. This procedure, however, would not be valid under the present tax laws. The method, moreover, would be more vicious than the use of the State's right of eminent domain which would compensate the owner for the rights of which he has been deprived. High taxation is confiscatory and should not be seriously considered as a means of acquiring title.

Dedicate the Lands to Grazing

There is also the possibility that the lands that have been exploited excessively for forest products and require large sums of capital to rehabilitate them should be used for some purpose other than forestry. A use that has possibilities is grazing, although this land use is considered even more extensive than forestry and as such, yields less land rent. The other factor that operates to the advantage of using the land for timber production rather than grazing purposes, the commodity that is produced, viz., beef or mutton or lamb, is a consumer commodity that requires very little processing to prepare it for the market. In the case of timber production, however, the logs or bolts from the trees must be processed before they can move into the consumer market. This processing requires the use of men and heavy equipment.

Where grazing is conducted on forest lands, those lands whose highest use is really timber production, there almost inevitably occurs a clash of interests. The decision as to whether the cutover longleaf lands of Southwest Louisiana should be used for livestock production or timber production should be based on the highest use to which the land can be put. Pearson[27] presented data which showed that even in the region of slow-growing timber, considerably removed from consuming areas as on the Coconino Plateau, timber production, exclusive of the employment opportunities made possible by industries dependent upon it, yielded a land rent superior to that returned by livestock production. Until there is evidence that grazing on the cutover longleaf pine forest lands is a higher form of land use than forestry, it will be assumed that the land should be dedicated to timber production rather than grazing.

State Ownership or Control

There are several factors that operate against State acquisition of title to the forest lands requiring large capital investment to rehabilitate them. The first is the same as discussed in detail above, viz., the subsurface values. The second is the task of financing of the reforestation and protection during subsequent years. The third factor is the traditional aversion of the political leaders of the State toward ownership of land. Earlier in this paper there was a discussion of the several Acts of the State Legislature, convening in the depression period, to allow title to land to remain in private ownership. Undoubtedly much of the land that was redeemed was reclaimed because of its mineral and subsurface value rather than because of the desire to utilize the surface for some productive purpose such as grazing, farming, or forestry. The mineral rights, however, could not be redeemed from the collector without acquiring the surface as well, so the surface rights were acquired also, although probably purely incidentally to the mineral rights.

A fourth factor that seems unfavorable toward having the State ac-

[27] Pearson, G. A., "Forest Land Use," *Jour. of Forestry* 38:261-270, 1940, p. 264.

quire land for state forest purposes is lack of experience in administering publicly owned forest land for purposes of State Forests. The critic of this observation could well point out that there always has to be a beginning sometime and that some other States appear to be able to manage their public forests quite efficiently.

The legal aspects of the matter of public acquisition, either Federal or State, of title to forest land depleted of its forest capital is such that it is very doubtful whether substantial amounts of land could be acquired in fee. It is questionable, moreover, whether the Federal government would be willing to lease forest land for national purposes even though this was the basis offered by Hammar and Mussman for obtaining control of forest land. There is no institutional obstacle that would prevent the State from leasing the surface rights. The State has no precedent to break in taking action of this sort. The facts just listed lead to the conclusion that the State would be the logical level of government to practice forestry. Because of the difficulties in acquiring title in fee, the surface rights should be leased for a long period, e.g., 99 years.

If lands are leased, the annual fee for this privilege should not be much, if any, in excess of the annual property taxes. The surface is probably yielding no income whatsoever to the present owner. Actually the owner wishes to preserve his property rights only in the sub-surface, so is relinquishing nothing valuable when he gives up control of surface rights. These are important to the owner in that control over them gives him access to the values below the surface. In theory, at least, the cost of leasing the surface rights should therefore be small.

Referring to precedent, viz., the general policy of the State avoiding the acquisition and administration of public forest land and approval given previously by the State for the purchase of land by the Federal government for national forest purposes, the natural course indicated is the extension of the national forest area in Louisiana. The institutional obstacles to this procedure, however, are so great that the only practical alternative would be for the State to depart from precedent and acquire control of the surface, make the necessary investment, and commit itself to the policy of providing good administration for the State forests.

Summary of Recommendations for Pine Lands

There has been in this paper a great deal of discussion of the relationship of government, as an institutional factor, to forestry. Two levels of government are now involved in taking public forest aid to the private landowner. Federal funds made possible by the Clarke-McNary and Norris-Doxey Laws channel to the private owner through the State Division of Forestry. There seems to be no genuine obstacle to using Federal funds, available through the above-mentioned Federal laws, in the proposed Forest Conservation Districts. The Norris-Doxey projects should be located entirely within the boundaries of Districts. This action would

be to the distinct advantage of the cooperative farm forestry projects, for forest fire protection would be available to all forest lands under agreement in the Forest Conservation District. Protection would be extended only to those lands lying within Districts. There would be no more injustice in this procedure than is the case today where protection is withheld from small landowners because of the absence of several large tracts also demanding protection. After following a pattern of State and private relationships for twenty years, it will be difficult to break through the "hardened cake of custom," but it will be necessary to do this if there is to be progress toward increasing the productivity of the private forest lands by use of intensive education. There will be numerous administrative difficulties to overcome. The Federal agencies, particularly the Forest Service and the Soil Conservation Service, will have to be convinced of the merits of the changes, and the Class III landowners, very influential cooperators, must be shown that the adoption of the plan will, in the long run, not be harmful.

The cost of that part of the revised program dealing with private owners would be approximately $440,000 as compared with approximately $400,000 that the Division spends today. There are numerous indications that the Federal government will finally appropriate more funds for forest fire protection, so the State should expect more Federal financial assistance. This would probably more than offset the loss of approximately $30,000 of private funds now collected from cooperators in forest fire protection. An increase of $150,000 should, therefore, enable the State Division of Forestry to carry on its increased educational activities. This would mean increasing the State appropriation for the Division of Forestry from $250,000 annually to $400,000.

In the event that the State decides to rehabilitate the denuded forest lands, amounting to approximately $1\frac{1}{4}$ million acres, the magnitude of the cost will be much greater than for the educational work. Assuming that the cost of planting would be $5 per acre, the project would require a capital expenditure of $6,250,000. If money could be borrowed by the State at four percent, debt retired in 25 years at the rate of $250,000 annually, cost of administration at ten cents per acre per year, cost of leasing surface rights at $0.25 per acre per year, the annual cost to the State would be $765,000. At the end of twenty-five years, however, the State would have $1\frac{1}{4}$ million acres of very productive forest land that should be capable of producing a gross initial revenue of approximately $1,000,000 per year, increasing to $2,500,000 in another fifteen years. The cost to the State of transforming a liability of wasted surface resources to an asset would be approximately $20,000,000 twenty-five years after the work was started and when the property could be considered a going concern. These values are exclusive of the social gain that would accrue to the State through making available a resource used by forest products industries. The expansion of these industries will provide greater employment opportunity in the State, a goal that is certainly desirable.

The Bottomland Hardwood Forest Type

Attention has already been called to the large area of the State's forest land that supports the bottomland hardwood forest type. By virtue of topographic conditions, Louisiana has had not only splendid stands of pine timber, but also hardwood forests unsurpassed by any in the United States. Even today, after a good many years of exploitation, the hardwood forests produce approximately one-third of the lumber produced in the State.

Culled Bottomland Hardwood Area.
Photo by U.S.F.S.—from unnumbered mimeograph paper—S.F.E.S.—6/1/28

Mention has already been made that very little is known with regard to the way in which the bottomland hardwoods and of timber should be handled. A large part of forest management consists of converting what is now culled-over stands of timber into forests of species in good commercial demand. The subject of forest management, therefore, is inexorably identified with the utilization of a great volume of low value species that now characterizes the timber on the hardwood bottomlands. The demand for hardwood lumber is limited. The local pulp industry prefers to avoid using hardwoods. The hardwood veneer industry is very selective in the species it is willing to process. For these reasons, forest management in the bottomland hardwood area has not made much headway. Because progress in management is so directly associated with the problem of utilization of low-grade hardwoods, no recommendations

will be made with regard to increasing the productivity of the bottomland hardwood area. Until the specialists in utilization solve the inferior hardwood problem, there will be little progress toward achieving widespread forest management except on sites conducive to species in good demand such as red gum and cottonwood.

III

COMMENTS ON THE REFORESTATION TAX LAW

One way in which the State has endeavored to encourage the private owner of forest land to produce timber continuously is through what is commonly referred to as the Reforestation Tax Law. This was enacted in 1924 and has remained on the statute books ever since.

In the nine parishes studied intensively in the investigation in 1941 only four landowners had listed 29,242 acres under the terms of the contract in the loblolly-shortleaf area, 30 landowners had listed 45,105 acres in the longleaf-slash area, and none in the hardwood bottomlands.

This is evidence that the contract has not contributed very much to progress in forest conservation. It might be assumed, for example, that the extent to which landowners take advantage of the reforestation contract is an excellent criterion of the owners' intent concerning forest land management. It should not be concluded, however, that for an owner not to enter into a reforestation contract with the State implies an absence of intent to practice forestry. There are several handicaps to the more widespread use of the Law.

The essence of the reforestation contract is as follows:

1. Land and timber are taxed as separate entities.
2. The valuation of the land is determined by the local police jury at an amount somewhere between $3 and $8 per acre. This valuation will last the life of the reforestation contract.
3. The police jury representing the parish (county) is a party to the contract.
4. Taxes levied annually against the land are payable under the usual system of collecting taxes on real property.
5. Taxes on the timber are paid only at time of cutting. Cutting may be done only with the sanction of the state forester and subject to those restrictions created by him.
6. The rate of payment at the time of timber severance is six percent of the stumpage value.

7. The funds obtained through the deferred timber tax at time of severance are divided into four equal parts, three of them going to the local parish and one to the general fund of the state.
8. Contracts are limited in duration to forty years.
9. There is a penalty on the private owner for voiding the contract.

There are two outstanding obstacles for the private owner to overcome before he signs a reforestation contract. First, the police jury of the parish in which his lands are located must give assent to entering into a contract of this sort; this implies agreement as to the assessed value of the property. The statute on the subject states that the assessed value must be between $3 and $8 per acre. If, for example, the police jury wishes to list the lands at an assessed value of $7.50 per acre, the landowner might consider this amount excessive. If, unable to persuade the police jury to assess the land closer to the allowed minimum, especially if his land is already assessed at that amount including the timber, there is no incentive to enter into a contract with the state. Police juries appear to be reluctant to commit themselves for a long-time assessment on a nominal basis, even though such action would, in the long run, be conducive to increasing the taxable wealth of the parish. Most police juries have the short-run point of view, for they are confronted continually with obtaining current revenue to carry on parish functions. Almost the only source of revenue left to the parish by the Federal and State governments is that derived from taxing real property. If a large amount of forest land in a parish is placed under reforestation contract, the police jury is liable to criticism from the remaining land owners, even though many of these same owners have had their tax burdens lightened through the Homestead Exemption Law. The net effect of the widespread use of the reforestation contract is to narrow the parishes' tax base.

The second obstacle that stands in the way of greater participation among landowners in the reforestation contract is their dislike of being subject to the control of the State Forester's office when a cutting is made.

As of January 31, 1942, there were 608,701 acres of forest land listed under the reforestation contracts. These represented 63 separate ownerships, but 113 contracts. This forest land area was 3.7 percent of the State's forest land. When one keeps in mind, however, that forest management has been made popular on only the pine forest land of approximately $7\frac{1}{2}$ million acres, there is the figure of 8 percent that confronts us as being more nearly correct than the above mentioned 3.7 percent. It is significant that many of the large holders of forest land have refrained from entering into a reforestation agreement. For example, although approximately 450 forest land owners have listed 2,250,000 acres of their forest land for cooperative protection, only 63 of these owners have entered into a reforestation contract for a total of 608,701 acres. In the nine parishes studied intensively, only three contained forest land under

a reforestation contract, representing only 14 owners out of almost 16,000 and 62,347 acres out of 3,100,000. It appears, therefore, that short-term contracts characterized by the fire protection agreements are preferable to long time ones such as the Reforestation Contracts.

Suggested Revisions

In order that the reforestation contract can become operative to the fullest advantage, it is suggested that the changes in the Reforestation Contract Law be made as follows: (a) The assessment levied against the land should be a uniform amount in all parishes, rather than an amount between $3 and $8 per acre, set at the option of the Police Jury concerned. An assessment of $3.00 or $4.00 would probably be adequate. The millage levied against the assessed valuation ranges from 30 to 70 per dollar value. Taking the mean of these two figures, being 50, with valuation at $3.00 per acre, the income to the parish would be $0.15 per acre per year. Add to this the amount proposed below and the income to the parish, on a per acre basis, would probably be in excess of what most parishes are now obtaining on lands not under reforestation contract. (b) The clause requiring the approval of the police jury should be deleted. The outstanding argument for having the police jury a party to the agreement is because the income to the parish is affected the way the law now exists. If the suggestions for revision, contained in this discussion, are adopted, the revenue accruing to the parish from forest lands will hardly be influenced. There have been several instances where landowners have applied to the police jury for authority to enter into a reforestation contract, but permission has been denied without advancing any good reason other than the effect on parish revenue. It must be admitted, however, that this is a very strong reason since the income to a parish is almost entirely dependent on taxes derived from real property. Admittedly the resident owner of a small tract of land would scarcely be benefitted by the reforestation contract law because he is already enjoying a homestead exemption. The chief beneficiary would probably be the owners of that one-third of all the forest acreage, the Class II lands and the industrial, or Class III forest area. The resident landowners, a very influential part of the voting population and those who hold the balance of power in parish and State politics, would have to be sold on the merits of the proposed revision, viz., increased forest productivity eventually with greater local employment opportunities. (c) All parishes, and particularly the poorer rural ones in which most of the forest conservation districts would be situated, are continually confronted with financial problems. If the privilege of fixing the assessed valuation against forest lands is withdrawn from the parish authorities, then they should be compensated. It is suggested that the parish be subsidized out of severance taxes accruing to the State. This subsidy could be fixed at ten cents per acre per year for all land that has been listed under the Reforestation Contract Law, being paid to the parish affected by the lands

listed under the Law. The present reforestation law provides that three-quarters of the sums collected at time of severance be paid to the parish concerned. The parish, however, would probably prefer to have present income than future income. The state is in a much more advantageous position to fund its operations than is the parish. With the gross income to the state from its severance taxes probably increasing rather than decreasing, there should be no great difficulty in paying the parishes from state severance taxes the necessary amount. (d) New Reforestation Contracts should be entered into by the State only on lands included within a Forest Conservation District. Although the Reforestation Contracts would be made between the individual owners and the State, no contract should be entered into unless preceded by an agreement between the landowner and the Forest Conservation District. (e) The revised law should include a provision that all reforestation contracts in existence at the time of enactment of the new law should continue to be valid but that they can be declared invalid if all parties agree, provided that a new contract is entered into between the State and the landowner.

APPENDIX

TABLE A

Quantity of Owners of Forest Land
Arranged by Classes of Ownerships and Parishes

Forest Type and Parish	Class I				Class II				Class III				Totals			
	Resident	Contiguous	Absentee	Totals	Resident	Contiguous	Absentee	Totals	Resident	Contiguous	Absentee	Totals	Resident	Contiguous	Absentee	Totals
DeSoto	1022	602	285	1909	287	599	500	1386	....	5	3	8	1309	1206	788	3303
Jackson	802	250	59	1111	78	314	130	522	....	2	3	5	880	566	192	1638
LaSalle	547	103	21	671	16	314	117	447	....	4	7	11	563	421	145	1129
St. Helena	714	211	44	969	42	180	53	275	....	1	6	7	756	392	103	1251
Union	1474	536	109	2119	84	407	268	759	....	1	4	5	1558	944	381	2883
Shortleaf-Loblolly	4559	1702	518	6779	507	1814	1068	3389	....	13	23	36	5066	3529	1609	10204
Percent	44.68	16.68	5.08	66.43	4.97	17.78	10.47	33.21	....	0.13	0.23	0.35	49.65	34.58	15.77	....
Beauregard	848	137	84	1069	89	574	1024	1687	....	1	8	9	937	712	1116	2765
St. Tammany	684	61	4	749	436	539	314	1289	....	2	17	19	1120	602	335	2057
Longleaf-Slash	1532	198	88	1818	525	1113	1338	2976	....	3	25	28	2057	1314	1451	4822
Percent	31.77	4.11	1.82	37.70	10.89	23.08	27.75	61.72	....	0.06	0.52	05.8	42.66	27.25	20.09	....
Concordia	276	57	26	359	34	24	41	99	....	1	6	7	310	82	73	485
Madison	128	126	42	296	10	72	48	130	....	....	7	7	138	198	97	433
Miss. H'dw'ds	404	183	68	655	44	96	89	229	....	1	13	14	448	280	170	898
Percent	44.99	20.38	7.57	72.94	4.90	10.69	9.91	25.50	....	0.11	1.45	1.56	49.89	31.18	18.93	....
Totals	6495	2083	674	9252	1076	3023	2495	6594	....	17	61	78	7571	5123	3230	15924
Percent	40.74	13.08	4.23	58.10	6.76	18.98	15.67	41.41	....	0.11	0.38	0.49	47.54	32.19	20.26	....

TABLE B

Area Held by Classes of Owners of Forest Land Arranged by Parishes

Forest Type and Parish	Class I				Class II				Class III				Totals			
	Resident	Contiguous	Absentee	Totals	Resident	Contiguous	Absentee	Totals	Resident	Contiguous	Absentee	Totals	Resident	Contiguous	Absentee	Totals
DeSoto	78,432	79,786	47,968	206,537	17,180	40,090	41,831	98,111	.....	1,343	26,840	28,183	94,718	121,219	116,639	322,831
Jackson	45,587	32,943	6,004	84,594	4,352	31,325	18,302	54,006	.....	55,000	91,080	146,280	49,939	119,469	115,446	301,734
LaSalle	29,528	7,943	835	38,036	1,285	18,433	11,743	31,461	.....	126,623	67,214	193,837	30,813	152,999	79,792	263,604
St. Helena	55,162	26,329	10,565	92,056	2,442	20,386	21,168	43,996	.....	264	63,050	63,314	57,604	46,979	94,783	199,366
Union	102,975	52,254	15,273	169,502	4,368	30,776	50,613	84,757	.....	2,137	168,648	170,785	106,443	85,167	234,534	425,044
Shortleaf-Loblolly	310,784	199,255	80,645	590,995	28,627	141,041	133,657	312,331	.....	183,430	416,832	602,399	525,417	525,832	641,194	1,522,579
Percent	20.41	13.00	5.3	38.81	1.88	.....	8.78	20.51	.....	12.04	27.38	39.56	22.29	34.54	42.11	.....
Beauregard	51,870	11,280	5,261	68,413	5,161	56,540	426,078	487,779	.....	8,213	117,797	126,010	57,031	76,035	549,136	686,661
St. Tammany	33,465	7,337	141	41,541	18,697	96,268	54,405	166,635	.....	48,324	85,172	123,496	52,162	151,929	139,718	331,672
Longleaf-Slash	85,335	18,617	5,402	109,954	23,858	152,808	480,483	654,414	.....	56,537	202,969	249,506	109,193	227,964	688,854	1,018,333
Percent	8.38	1.83	0.53	10.80	2.34	15.00	47.18	64.26	.....	5.55	19.93	24.50	10.72	22.39	67.74	.....
Concordia	62,319	42,762	23,598	128,679	4,963	27,036	65,467	97,466	.....	814	77,641	78,455	67,282	70,612	166,706	304,600
Madison	27,539	891568	27,624	144,731	856	17,719	17,642	36,217	.....	.....	80,151	80,151	28,395	107,287	125,417	261,099
Miss. H'dw'ds	89,958	132,330	51,222	273,410	5,819	44,755	83,109	133,683	.....	814	157,792	158,606	95,677	177,899	292,123	565,699
Percent	15.00	23.39	9.05	48.33	1.03	7.91	14.69	23.62	.....	0.14	27.89	28.04	16.44	31.44	51.63	.....
Totals	485,977	350,202	137,269	974,359	58,304	338,573	707,249	1,100,428	.....	240,781	777,593	1,010,511	544,287	931,695	1,622,171	3,085,298
Percentages	15.64	11.27	4.42	31.36	1.88	10.90	22.77	35.42	.....	7.72	25.20	32.51	17.52	29.96	52.58	.....

TABLE C

Size Class Distribution and Quantity of Owners Holding Forest Land

Size Class	Parish and Forest Type												
	DeSoto	Jackson	LaSalle	St. Helena	Union	Loblolly-Shortleaf	Beaure-gard	St. Tammany	Longleaf-Slash	Concordia	Madison	Hard-woods	Total
(1) 1-10	190	39	218	52	213	712	253	322	575	37	49	86	1,373
(2) 11-20	257	94	178	85	433	1,047	335	367	702	54	12	66	1,815
(3) 21-40	795	382	314	233	745	2,469	827	469	296	87	49	136	3,901
(4) 41-80	808	435	212	317	712	2,484	613	374	987	76	75	151	3,622
(5) 81-120	394	267	82	206	345	1,294	235	150	385	40	35	75	1,754
(6) 121-160	271	245	57	114	177	864	179	133	312	30	31	61	1,237
(7) 161-320	318	160	38	152	175	843	162	114	276	48	59	107	1,226
(8) 321-640	173	49	15	58	67	357	74	55	129	29	69	98	584
(9) 641-1,280	69	10	3	23	25	130	27	35	62	23	38	61	253
(10) 1,281-2,560	30	1	5	5	6	47	13	16	29	17	36	53	129
(11) 2,561-5,120	5	.....	1	.....	3	9	2	9	11	7	13	20	40
(12) 5,121-11,520	2	1	.....	.....	2	5	8	5	13	9	4	13	31
(13) 11,521-23,040	.....	1	2	.....	1	4	5	.....	5	4	3	7	16
(14) 23,041-46,080	1	.....	1	1	.....	3	2	2	4	2	2	4	11
(15) 46,081-69,120	.....	1	.....	1	.....	2	.....	.....	0	.....	.....	0	2
(16) 69,121-Inf	.....	.....	1	.....	1	2	2	.....	2	.....	.....	0	4
Total	3,313	1,685	1,127	1,247	2,900	10,272	2,737	2,051	4,788	463	475	938	15,998

TABLE D

Size Class Distribution and Acreage of Forest Land Held by Owners

Size Class	Parish and Forest Type												
	DeSoto	Jackson	LaSalle	St. Helena	Union	Loblolly-Shortleaf	Beaure-gard	St. Tammany	Longleaf-Slash	Concordia	Madison	Hard-woods	Total
(1)	1,385	298	1,394	362	1,796	5,235	1,772	2,211	3,983	311	62	373	9,591
(2)	4,103	1,473	3,021	1,156	7,521	17,274	5,395	5,144	10,539	912	192	1,104	28,917
(3)	22,540	11,326	10,047	5,358	25,132	74,403	27,272	13,259	40,531	2,750	1,516	4,266	119,200
(4)	37,600	21,973	13,298	12,993	43,181	129,045	36,638	20,895	56,533	4,618	3,395	8,013	194,591
(5)	26,081	20,807	8,330	15,011	34,435	104,664	21,800	13,277	35,077	4,145	2,368	6,513	146,254
(6)	24,517	26,442	8,668	12,274	24,393	96,294	25,266	18,505	43,771	4,360	3,060	7,420	147,485
(7)	44,473	29,026	8,768	27,758	38,122	148,147	32,656	20,610	53,266	11,574	9,464	21,038	222,451
(8)	47,696	19,210	6,208	22,715	26,977	122,806	31,488	23,160	54,648	12,497	20,211	32,708	210,162
(9)	35,503	8,301	4,561	16,925	21,330	86,620	19,403	32,244	51,647	19,297	23,271	42,568	180,835
(10)	28,553	8,715	15,245	5,779	10,289	68,581	21,543	25,932	47,475	43,012	42,664	85,676	201,732
(11)	16,935	.....	4,019	.....	9,830	30,784	5,798	43,223	49,021	28,179	30,308	58,487	138,292
(12)	17,034	5,521	.....	.....	15,006	37,561	69,802	53,262	123,064	66,759	23,140	89,899	250,524
(13)	.....	13,588	52,749	.....	21,862	88,199	85,765	.....	85,765	65,492	34,072	99,564	273,528
(14)	26,406	74,095	45,055	23,745	.....	169,301	62,541	59,950	122,491	51,262	67,376	118,638	410,430
(15)	.....	58,716	.....	56,446	.....	115,162	.....	.....	.....	.....	.....	.....	115,162
(16)	.....	.....	82,241	.....	143,803	226,044	235,609	.....	235,609	.....	.....	.....	461,653
Total	332,826	299,491	263,604	200,522	423,677	1,520,120	682,748	331,672	1,014,420	315,168	261,099	576,267	3,110,807

TABLE E

Legal Identity of Owners of Forest Land

Parish	Individuals				Corporations		Estates		Partnerships		Totals	
	Men		Women									
	Number	Area	Number	Area	Number	Area	Number	Area	Number	Area	Number	Area
DeSoto	1,690	138,937	731	49,044	82	69,700	446	37,445	359	63,763	3,308	358,889
Jackson	1,227	104,406	297	19,355	52	156,420	89	14,487	51	7,066	1,716	301,734
LaSalle	689	41,554	209	9,843	20	195,705	160	9,764	39	5,619	1,117	262,485
St. Helena	798	75,859	237	21,169	30	62,518	134	17,072	59	6,716	1,258	183,334
Union	1,915	155,478	447	27,259	59	195,249	294	31,232	160	12,546	2,875	421,764
Loblolly-Shortleaf	6,319	516,234	1,921	126,670	243	679,592	1,123	110,000	668	95,710	10,274	1,528,206
Percent	61.50	33.78	18.70	8.29	2.37	44.47	10.93	7.20	6.50	6.26	.....	.....
Beauregard	2,029	181,528	421	25,752	51	451,624	90	7,277	155	23,759	2,746	689,940
St. Tammany	1,426	117,108	418	21,933	73	157,658	71	16,850	66	20,480	2,054	334,029
Longleaf-Slash	3,455	298,636	839	47,685	124	609,282	161	24,127	221	44,239	4,800	1,023,969
Percent	71.98	29.16	17.48	4.66	2.58	59.50	3.35	2.36	4.60	4.32	.....	.....
Concordia	306	98,193	60	24,564	29	110,689	40	17,348	27	54,320	462	305,114
Madison	283	79,117	53	19,088	32	129,960	15	4,695	52	28,239	435	261,099
Bottomland Hardwoods	589	177,310	113	43,652	61	240,649	55	22,043	79	82,559	897	566,213
Percent	65.66	31.32	12.60	7.71	6.80	42.50	6.13	3.89	8.81	14,58	.....	.....
Total	10,363	992,180	2,873	218,007	428	1,529,523	1,339	156,170	968	222,508	15,971	3,118,388
Percent	64.89	31.82	17.99	6.99	2.68	49.05	8.38	5.01	6.06	7.14	.....	.....